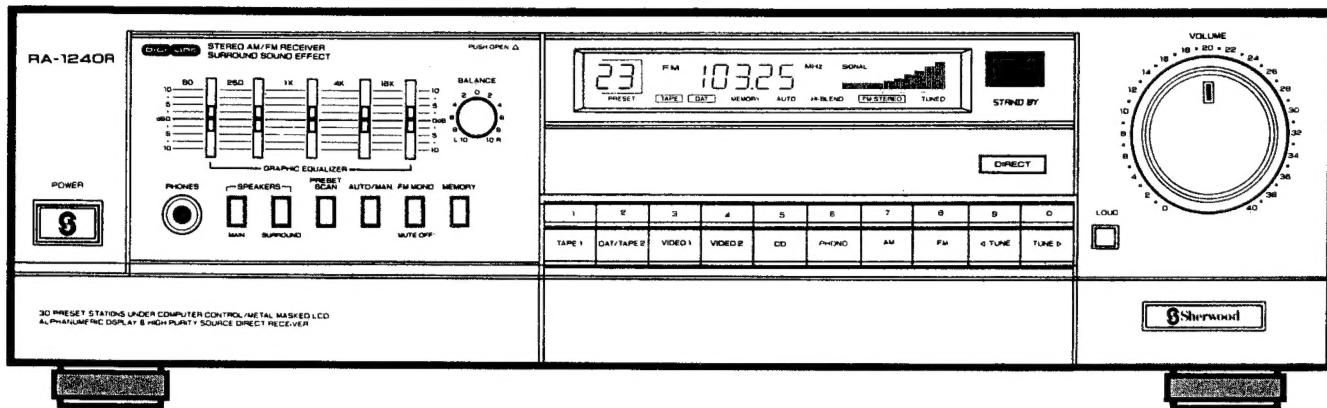


# SERVICE MANUAL

## RA-1240R REMOTE CONTROL RECEIVER



### CONTENTS

TO SERVICE PERSONNEL.....	2	TOP & BOTTOM VIEW OF P.C BOARDS.....	19
SPECIFICATIONS.....	3	MECHANICAL PARTS LIST & EXPLODED	
ELECTRICAL ADJUSTMENT.....	4	VIEW OF CABINET & CHASSIS.....	26
CIRCUIT DESCRIPTION.....	8	POINT TO POINT WIRING DIAGRAM.....	29
IC LEAD IDENTIFICATION.....	12	BLOCK DIAGRAM.....	31
ELECTRICAL PARTS LIST.....	15	SCHEMATIC DIAGRAM.....	SEPARATE SHEET

### NOTICE

- This manual is for authorized and qualified service personnel, so the basic service procedure and commonsense of safety are not described in this manual.
- Sherwood always makes every endeavor to improve the products, therefore the specifications and data provided are subject to change without notice.

 **Sherwood**

# To Service Personnel

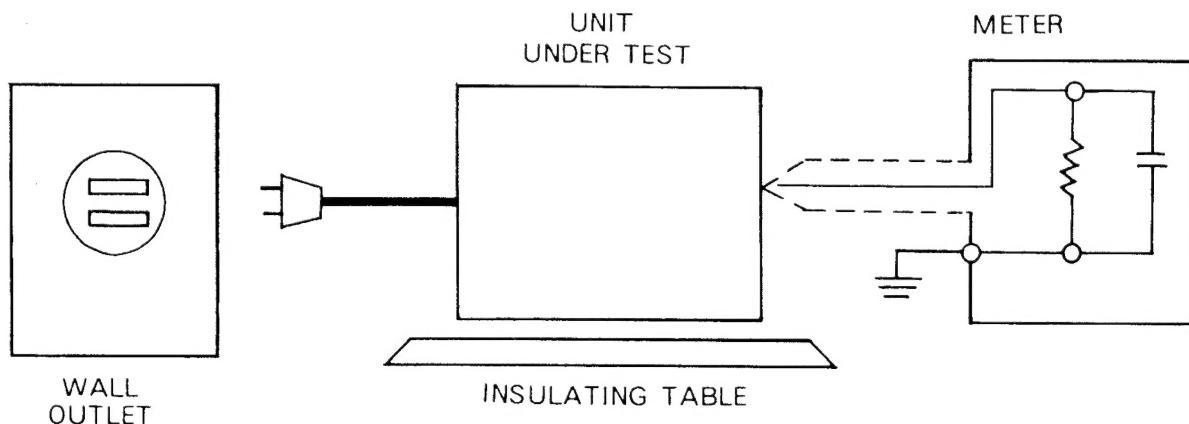
## 1. Critical Components Information.

The  marked components on schematic diagram and parts list must be replaced with the parts having specifications equal to those originally installed.

## 2. Leakage Current Measurement(For 120V Version only).

When the service has been completed, make sure that all exposed conductive surfaces are properly insulated from the power supply circuits.

- Leakage current meter should have an input impedance of 1500 ohms resistive shunted by  $0.15 \mu\text{F}$  capacitor.
- Leakage current shall not be exceed 0.5mA.



3. Turn the unit OFF, and disconnect the power supply cord during disassembly and replacement of parts.

4. When the service has been completed, be sure to check all protective devices and spacings before returning the unit to customer.

# Specifications

## AUDIO SECTION

### MIN. CONTINUOUS AVERAGE POWER OUTPUT/CH

from 20Hz to 20KHz with no more than 0.08% THD, INTO 8 OHMS..... 75W  
IMD(60Hz : 7KHz = 4 : 1) at 8 ohms/70W..... 0.05%

### DAMPING FACTOR

at 8 ohm, 1KHz..... 60

### INPUT SENSITIVITY for rated output at 1KHz

PHONO..... 2.5mV  
CD/TAPE IN..... 150mV

PHONO INPUT OVERLOAD at 1KHz, THD 0.1%..... 150mV

### SIGNAL TO NOISE RATIO(NETWORK A Wtd/unweighted)

PHONO..... 75/67dB  
Aux..... 95/88dB

### FREQUENCY RESPONSE

PHONO, 30Hz To 20KHz(Built-in Subsonic)..... RIAA±0.5dB  
AUX, -3dB..... 8Hz to 40KHz

5 BAND EQUALIZER CONTROL(60Hz, 250Hz, 1KHz, 4KHz, 16KHz)..... ±10dB

### LOUDNESS CONTROL

at 100Hz..... +7dB  
at 10KHz..... 3dB

### CROSSTALK

at 1KHz..... 50dB  
at 10KHz..... 45dB

## FM SECTION

Tuning Range..... 87.5 – 108MHz

Channel Space..... 100KHz

Usable Sensitivity, IHF..... 2uV(11.2dBf)

50dB Quieting Sensitivity, IHF

MONO..... 5uV(19.2dBf)  
STEREO..... 55uV(39.2dBf)

### THD AT 1KHz/100% MODULATION, IHF

MONO..... 0.2%  
STEREO..... 0.4%

### SIGNAL TO NOISE RATIO(IHF)

MONO..... 75dB  
STEREO..... 68dB

STEREO SEPARATION AT 1KHz..... 45dB

FREQUENCY RESPONSE -3dB..... 10Hz – 15KHz

CAPTURE RATIO..... 2dB

ALTERNATE CHANNEL SELECTIVITY(±400Hz)..... 60dB

IMAGE REJECTION..... 35dB

IF REJECTION..... 65dB

AM REJECTION..... 50dB

AUDIO OUTPUT LEVEL, 400Hz 100% MOD..... 600mV

MUTING LEVEL..... 10uV

## AM SECTION

TUNING RANGE..... 520 – 1710KHz

CHANNEL SPACE..... 10KHz

USABLE SENSITIVITY, 20dB S/N..... 800uV/m

SIGNAL TO NOISE RATIO, 30% MODULATION..... 45dB

SELECTIVITY(± 10KHz)..... 25dB

DEMENSIONS..... 440(W) × 280(D) × 118(H) mm WITHOUT  
RUBBER FOOT, END CAP AND KNOB

### POWER SUPPLY

(A) : U.S.A & CANADIAN MODEL..... 120V AC, 60Hz

(B) : MULTI-VOLTAGE MODEL..... 120V AC/220V AC, 50/60Hz

(C) : GENERAL EUROPEAN MODEL..... 220V AC, 50Hz

(D) : WEST GERMAN & ITALIAN MODEL..... 220V AC, 50Hz

(E) : BRITISH & AUSTRALIAN MODEL..... 240V AC, 50Hz

(F) : SWISS & SCANDINAVIAN MODEL..... 220V AC, 50Hz

NOTE : Design and specifications subject to change without notice for improvements.

# Electrical Adjustment

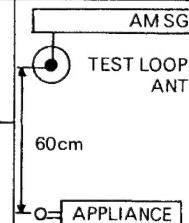
\*Before making adjustment, operate the appliance for more than 2 minutes.

## TUNER SECTION

- \*Note: 1. 0dB = 1 $\mu$ V
- 2. FM 100% Mod. = 75KHz Dev.
- 3. DVM = Digital Volt Meter
- 4. SG = Signal Generator
- 5. SSG = Stereo Signal Generator

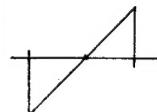
### 1. MW Adjustment

- Selector ..... TUNER, MW/AM
- In case of 2 band appliance(AM/FM), MW is converted into AM.

NO.	Subject	Feed Signal		Setting Appliance	Measure Output	Adjust Point	Adjust For	Remark
		From	To					
1	TUNING VOLTAGE	520KHz		*1) 520KHz	Connect DVM	T104	DC1±0.4V	
		1710KHz		*2) 1710KHz	Same as above	T102	DC8.5±0.4V	
		• Repeat the step * 1) and * 2) until DVM reads the tuning voltage mentioned above. • In case the freq. is 9KHz, the freq. of AM SG and appliance should be changed to * 1) 522KHz * 2) 1611KHz						
2	IF	AM IF Genescope	ANT		Connect IF Genescope	T106	Symmetrical curve on AM IF Genescope	
3	RF TUNING	* 1) AM SG 600KHz, 75dB 400Hz(30% MOD.)	ANT.	600KHz	Output Connect AC Voltmeter & Oscilloscope	T105	Maximize audio output	
		* 2) AM SG 1400KHz, 75dB 400Hz(30% MOD.)	ANT.	1400KHz	Same as above	TC101	Same as above	
		• FEED SIGNAL should be fed to loop ant. through the TEST Loop ant., 60cm distant from the appliance • Repeat the step * 1) & * 2) until no further improvement occurs. • In case the freq. is 9KHz, the freq. of AM SG and appliance should be changed to * 1) 603KHz * 2) 1404KHz						
4	TUNED LEVEL	AM SG 1000KHz, 83dB 400Hz(30% MOD.)	ANT.	1000KHz		VR101	Tuned light on	IN LCD
		• In case the freq. step is 9KHz, the freq. of AM SG and appliance should be changed to 999KHz.						

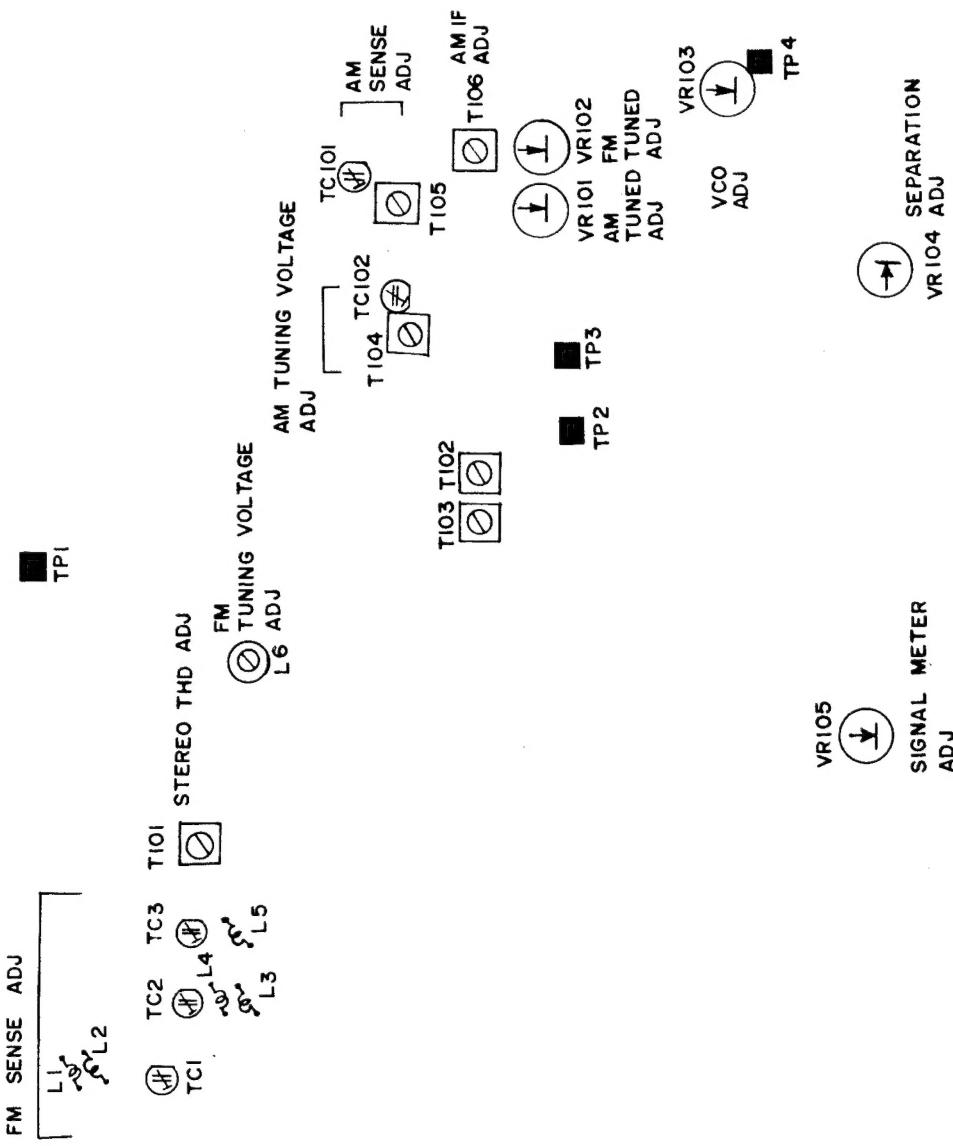
## 2. FM adjustment

- Selector .... TUNER, FM(MONO/STEREO)
- Deviation... UL/CSA(75KHz, Dev.)  
EUROPE(40KHz, Dev.)

No.	Subject	Feed Signal		Setting Appliance	Measure Output	Adjust Point	Adjust For	Remark
		From	To					
1	TUNING VOLTAGE			108MHz	connect DVM		DC8.3± 0.2	Fixed
				87.5MHz			DC2± 0.2V	
2	IF	FM IF GENESCOPE	ANT	98MHz 66dB	connect IF Genescope	T102	Symmetrical S curve on FM IF Genescope	
					connect DVM		DC 0± 50mV	
				Detune	connect Oscilloscope	T102	Maximize noise output	In case IF Genescope is not available
					connect DVM		DC0± 50mV	
3	RF TUNING	*1) FM SG 90MHz, 2.5μV 1KHz(75KHz, Dev.)	ANT	90MHz MONO	Output connect AC Volt meter & Distortion Analyzer and Oscilloscope	L1 L2 L3 L4	Maximize audio output	L5-D Version
		* 2) FM SG 106MHz, 2.5μV 1KHz(75KHz Dev.)	ANT	106MHz MONO	Same as above	TC2	Same as above	TC 3-D Version
		• Repeat the step *1) and *2) until no further improvement occurs.						
		FM SG 98MHz, 60dB 1KHz(75KHz Dev.)	ANT	98MHz MONO	*1) connect DVM	T102	DC0± 0.1V	
					* 2) Output connect AC Voltmeter & Distortion Analyzer	T103	Minimize distortion	
4	THD (MONO)	• Adjust the step *1) first, and the step *2) next, and repeat until no further improvement occurs.						
		FM SSG 98MHz, 60dB 1KHz(75KHz Dev.) pilot 19KHz(9% Mod)	ANT	98MHz STEREO	TP4 connect Freq. Counter	VR 103	Read 76KHz	
5	MPX (VCO)	• Before adjustment, set the FM SSG to "Mod. OFF"						
		FM SSG 98MHz, 60dB 1KHz(75KHz Dev.) pilot 19KHz(9% Mod)	ANT	98MHz STEREO	Output connect AC Volt meter & Distortion	T101	Minimize distortion	
6	THD (STEREO)	FM SSG 98MHz, 60dB 1KHz(75KHz Dev.) pilot 19KHz(9% Mod)	ANT	98MHz STEREO	Output connect AC Volt meter & Distortion	T101	Minimize distortion	
7	MUTE LEVEL	FM SG 98MHz, 10μV 1KHz(75KHz Dev.)	ANT	98MHz STEREO	Output connect Oscilloscope	VR 102	Muting occurs marginally	

NO.	Subject	Feed Signal		Setting Appliance	Measure Output	Aujust Point	Aujust For	Remark
		From	To					
8	SEPA-RATION	*1) FM SSG 98MHz, 60dB 1KHz(75KHz Dev). Pilot 19KHz(9% Mod) (L ch→R ch)	ANT	98MHz STEREO	R Ch Mod Connect AC Voltmeter & Distortion Analyzer and Oscilloscope	VR104	Minimize Output	
		*2) Same as above (R ch→L ch)			L ch Mod. Connect same as above	VR104	Minimize Output	
		Repeat the step *1) and *2) until no further improvement occurs						
9	SIGNAL METER	FM SSG 98MHz, 60dB 1KHz(75KHz DEV).	ANT	98MHz Mono		VR105	LCD Signal Meter 5 dot lights Slightly	

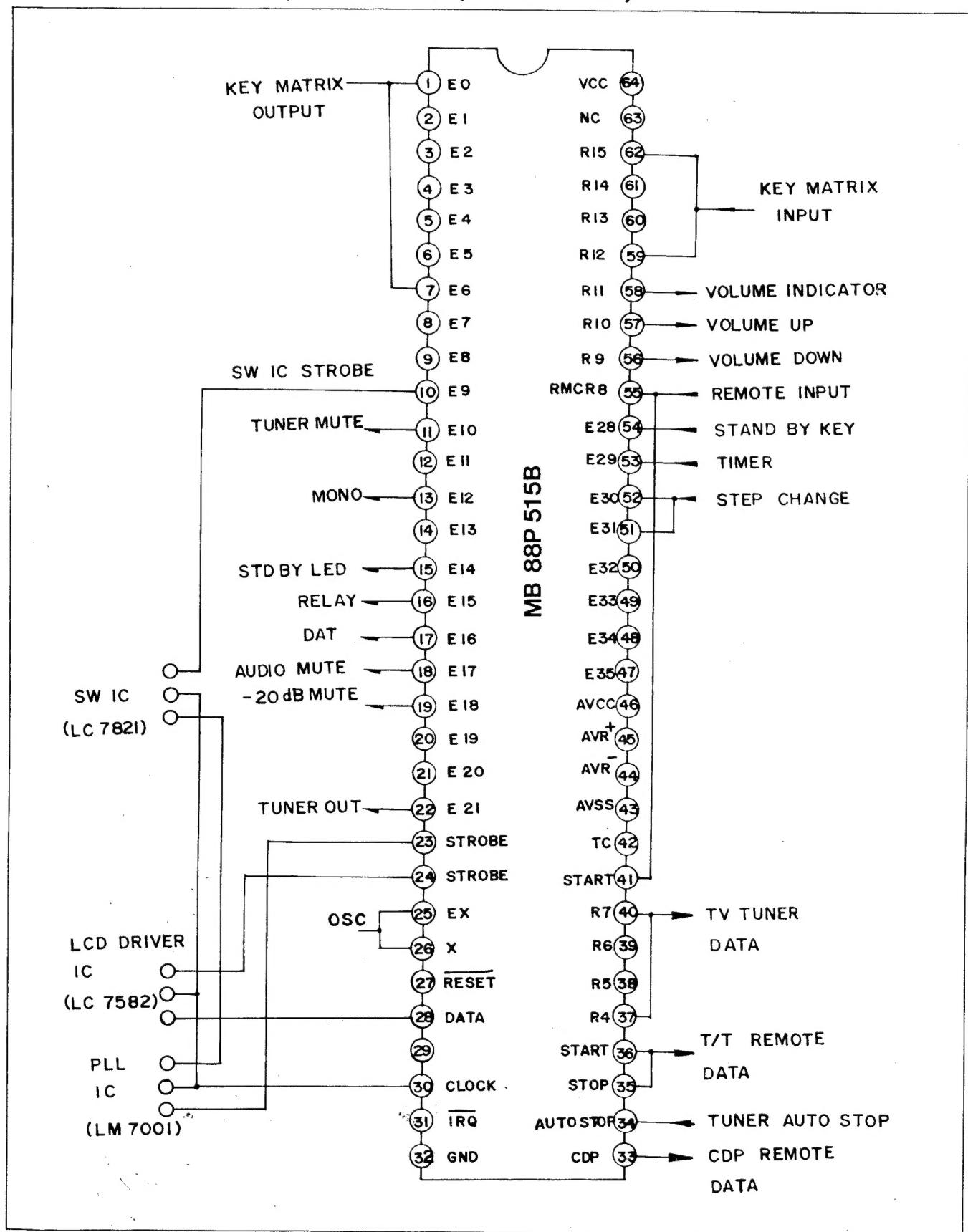
- ADJUSTMENT POINT



TUNER BOARD 4002017600

# Circuit Description

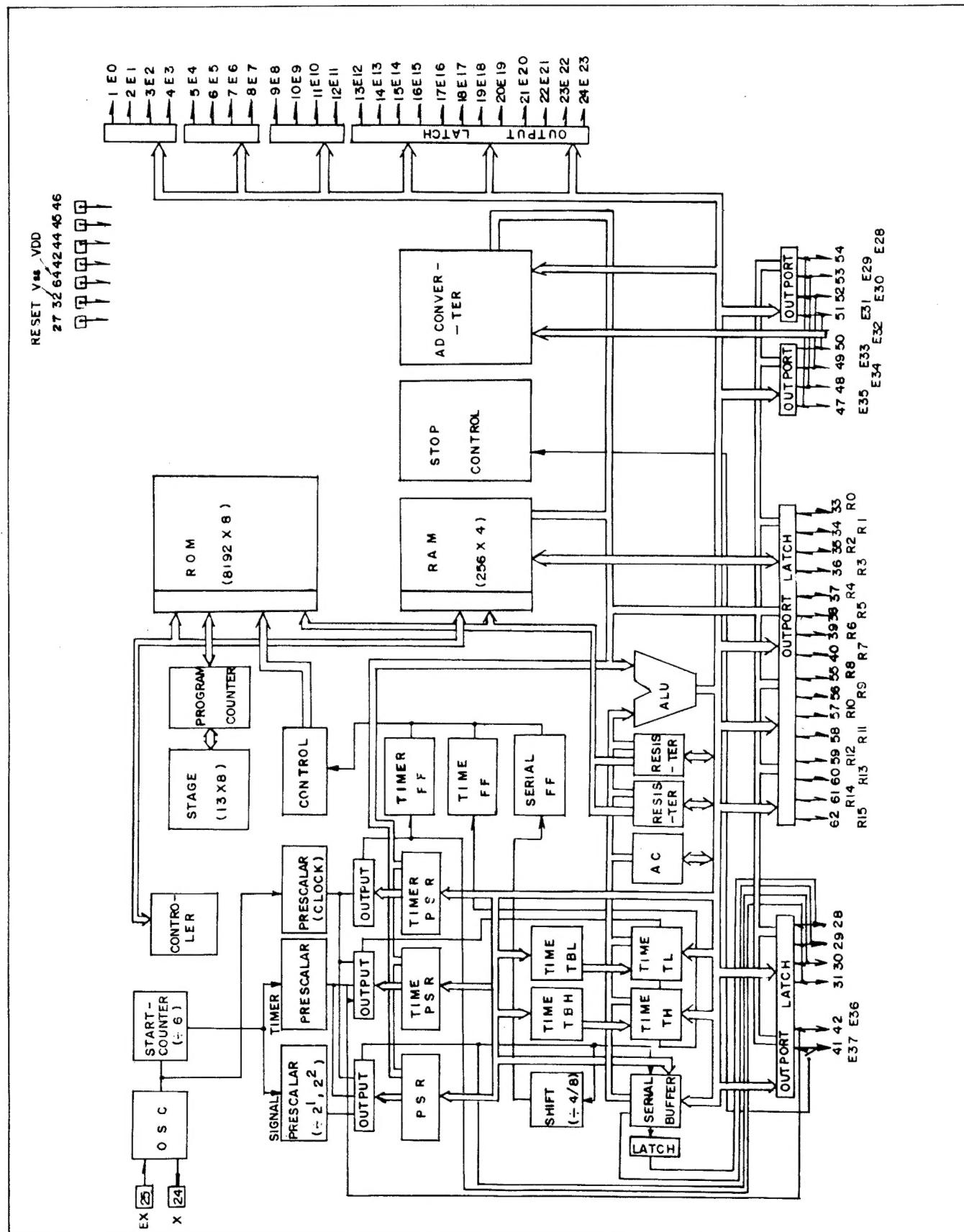
## - PIN ASSIGNMENT OF $\mu$ -COMPUTER (MB 88P 515B)



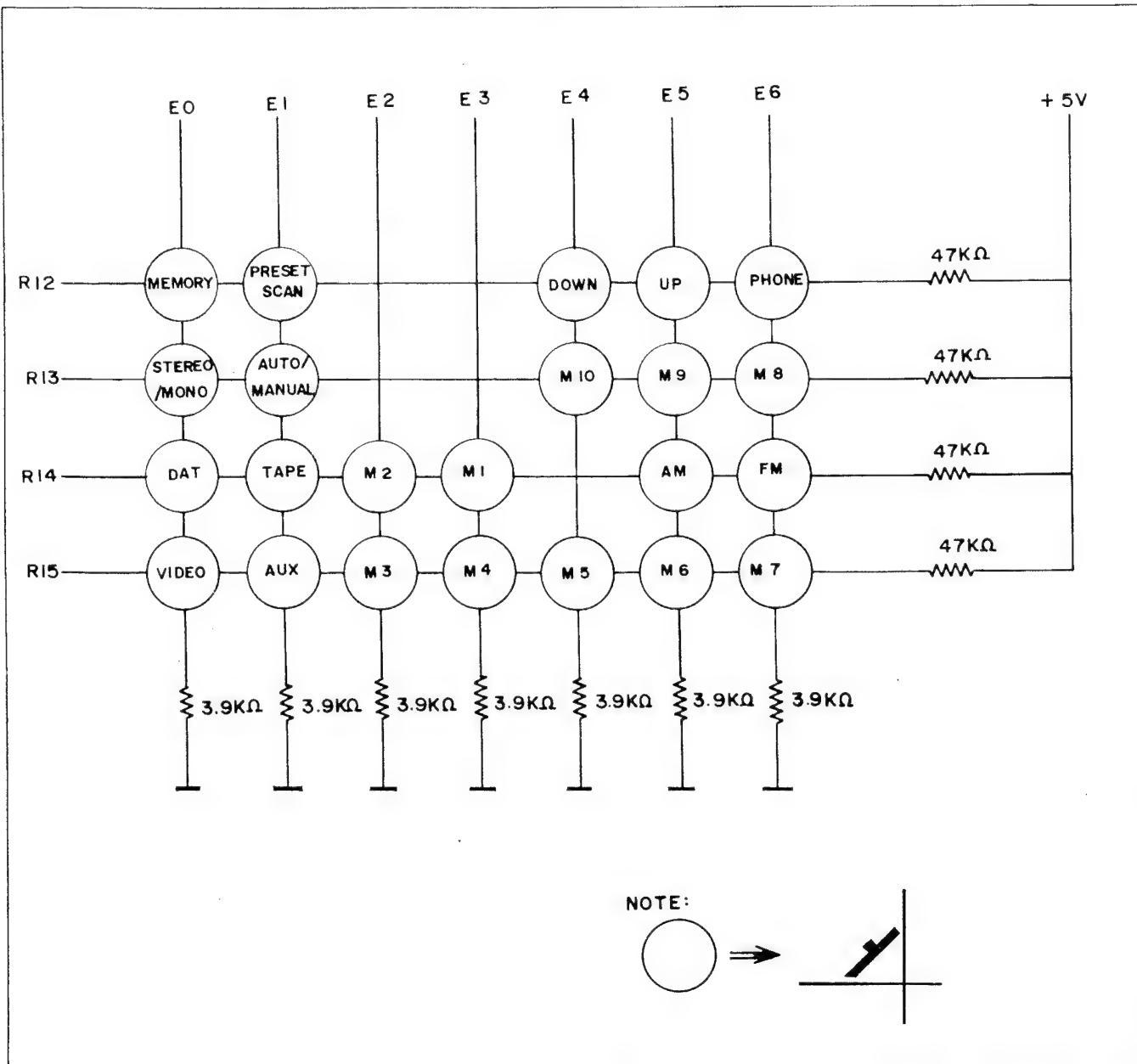
## - FUNCTIONS ASSIGNED (IC301: MB88P 515B)

NO	TERMINAL	OPERATING CHART	REMARKS	NO	TERMINAL	OPERATING CHART	REMARKS
1	KEY MATRIX OUTPUT			33	CDP REMOTE		
2	KEY MATRIX OUTPUT			34	AUTO STOP	0V → 5V	Q107
3	KEY MATRIX OUTPUT			35	T/T STOP	0V → 5V	Q306
4	KEY MATRIX OUTPUT			36	T/T START	0V → 5V	Q307
5	KEY MATRIX OUTPUT			37	TV TUNER REMOTE DATA		
6	KEY MATRIX OUTPUT			38	TV TUNER REMOTE DATA		
7	KEY MATRIX OUTPUT			39	TV TUNER REMOTE DATA		
8				40	TV TUNER REMOTE DATA		
9				41	START	REMOTE INPUT	Q304
10	SW IC STROBE		LC 7821	42			
11	TUNER MUTE	0V → 5V	Q106	43			
12				44			
13	FM MONO	0V → 5V	IC 104	45			
14				46			
15	STAND/BY LED	5V → 0V	Q303	47			
16	POWER RELAY	0V → 5V	Q502	48			
17	DAT DATA		LM7001, LC 7821, LC7852	49			
18	AUDIO MUTE	0V → 5V	Q507	50		FM/AM	
19	-20dB MUTE	0V → 5V	Q509, Q511	51	STEP CHANGE	100KHz/10KHz	2.2KΩ
20				52	STEP CHANGE	50KHz/9KHz	100KΩ 5V
21				53			
22	TUNER OUT	0V → 5V	Q109	54	STAND BY		
23	PLL STROBE	0V → 5V (1.6m/sec)	LM7001	55	RMC	REMOTE INPUT	
24	LCD STROBO	0V → 5V (30.6ms)	LC7582	56	VOLUME DOWN		BA 6208
25	EX			57	VOLUME UP		BA 6208
26	X	6MHz		58	VOLUME IND		NORMAL
27	RESET			59	KEY MATRIX INPUT		-20dB MUT
28	DATA		LM 7001 LC7821	60	KEY MATRIX INPUT		
29				61	KEY MATRIX INPUT		
30	CLOCK		LC 7582	62	KEY MATRIX INPUT		
31	IRQ			63			
32	GND			64	Vcc	+ 5V	

-INTERNAL BLOCK DIAGRAM: MB 88P 515B 4bit  $\mu$ -Computer)

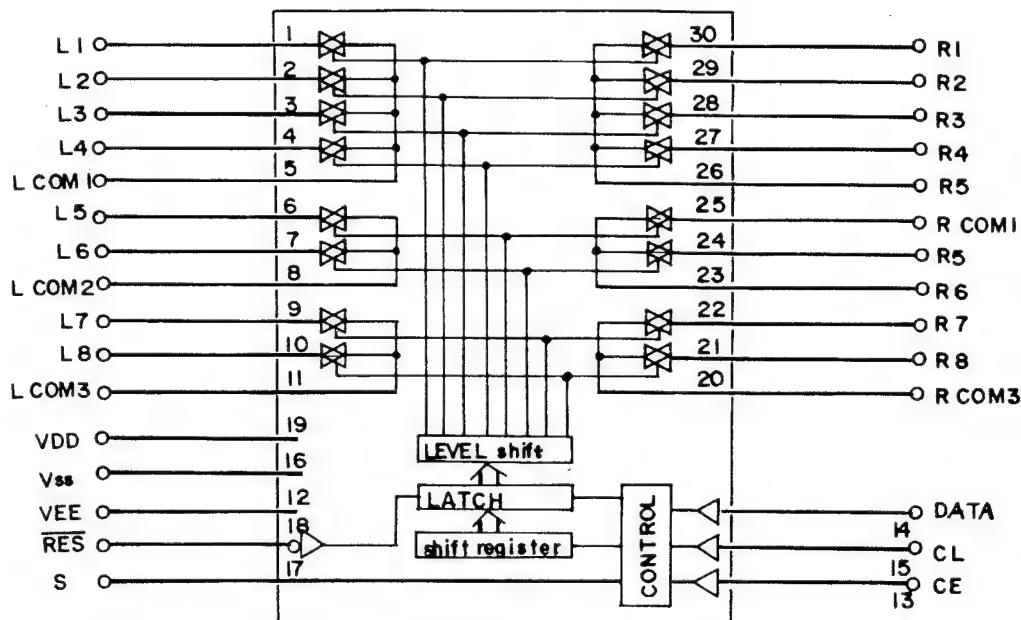


## - KEY MATRIX OF INPUT & OUTPUT



# IC Lead Identification

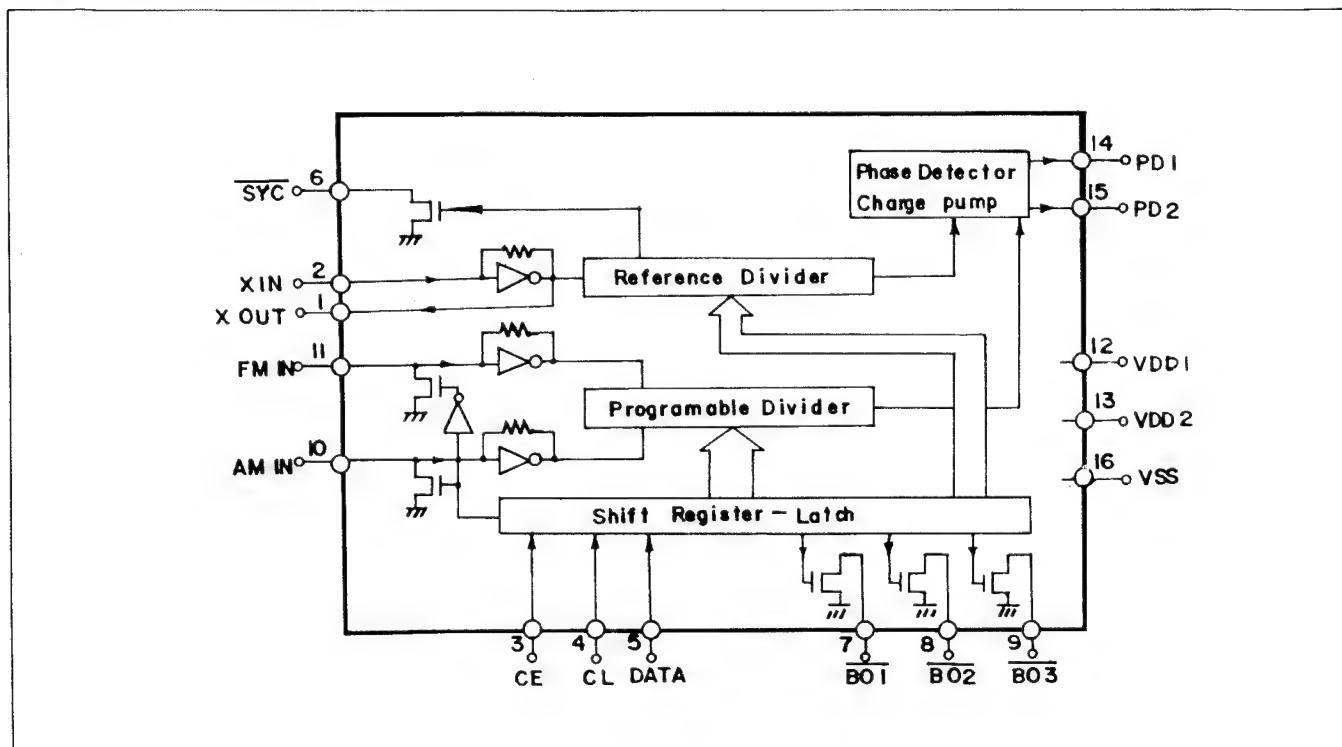
## - LC 7821: IC202(SWITCHING IC)



PIN NO.	TERMINAL	DESCRIPTION
1	TUNER	
2	PHONO	
3	CD	
4	VIDEO	
5	AUX	Control to the inside analog switch at the serial data
6	TAPE OUTPUT	
7	TAPE INPUT	
8	DAT OUTPUT	
12	VEE	Negative power supply terminal (-15V)
13	STROBE	Serial Control terminal
14	DATA	Connect terminal of MB 88P 515B
15	CLOCK	
16	VSS	
17	S	Ground terminal

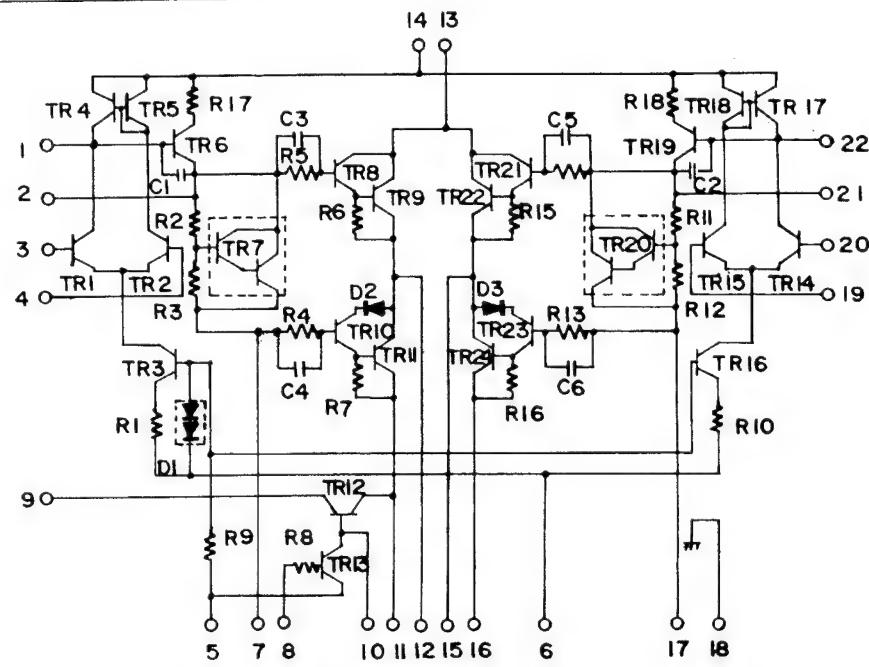
PIN NO.	TERMINAL	DESCRIPTION
18	RES	Reset terminal. When power is turned ON, the Condition of the analog switch is not determined, but when this terminal is 'L', all analog switches are OFF
19	VDD	Power Supply terminal(+15V)
20	DAT OUTPUT	
21	TAPE INPUT	
22	TAPE OUTPUT	
24	AUX	
25	VIDEO	
26	CD	
27	PHONO	
29	TUNER	
30		

## -LM7001 : IC 103(PLL IC)

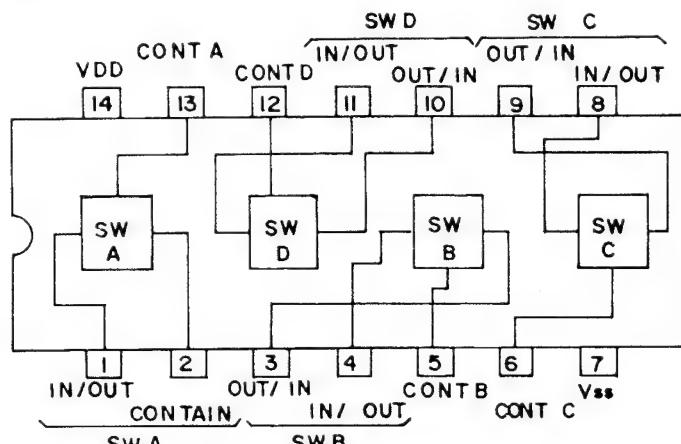


Pin No.	Terminal	Description									
1	XOUT	Connect to the 7.2MHz crystal oscillator.									
2	XIN										
3	CE	Chip enable terminal. Connect to the PLL terminal of MB 88P515B									
4	CL	Serial clock input terminal. Connect to the CLOCK terminal of MB88P515B									
5	DATA	Serial data input terminal. Connect to the DATA terminal of MB88P515B									
6	SYN	Not used.									
7	BAND1	BAND selector output terminal.									
8	BAND2	<table border="1"> <tr> <th>BAND</th> <th>BAND1</th> <th>BAND2</th> </tr> <tr> <td>FM</td> <td>H</td> <td>L</td> </tr> <tr> <td>FM A</td> <td>L</td> <td>H</td> </tr> </table>	BAND	BAND1	BAND2	FM	H	L	FM A	L	H
BAND	BAND1	BAND2									
FM	H	L									
FM A	L	H									
9	ANT	Antenna selector output terminal. "H" when antenna A and AM.									
9	AMIN	AM local oscillator input terminal.									
11	FMIN	FM local oscillator terminal.									
12	VDD1	Power supply terminal for back-up.									
13	VDD2	Power supply terminal									
14	PD1	Charge output of the phase detector which constitutes the PLL. High level is output when the divided local oscillator frequency is high than the reference frequency.									
15	VD2	In the opposite case, low level is output. Floating occurs when the frequencies matched. The output is applied to the variable capacitor diode in the local oscillator though the low pass filters.									
16	Vss	Ground Terminal									

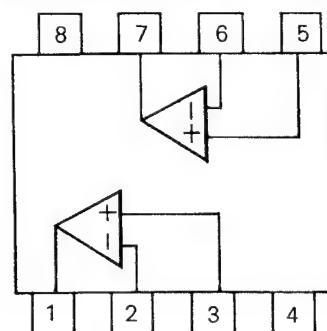
**-STK4211 V:IC 502(POWER IC)**



**-LC 4960 : IC203 (ANALOG SWITCH)**



**-NJM 4560D/NJM 4558DD/MC 4560D IC 601,201,104(DUAL OP AMP)**



# Electrical Parts List

## - MAIN BOARD 4002017500

Ref.No.	Parts No	Description	Position	Version
<b>• ICS</b>				
IC501	2168601110	GD 7806	2A	
IC502	2168017135	STK 4211V	4C	
<b>• TRANSISTORS</b>				
Q501, Q502	2008609101	MPS A05	2B	
Q503	2008609101	MPS A05	3B	
Q504, Q505	2008609101	MPS A05	3B	
Q506	2008609101	MPS A05	3B	
Q507	2208206105	KTA 1015Y	3C	
Q508, Q509	2008610102	2SA 1302	3C	
Q510, Q511	2008610102	2SA 1302	3C, 3A	
Q512, Q513	2008609101	MPS A05	3C	
<b>• DIODES</b>				
D501~D504	2058106100	1N 4002	2A	
D505	2058106100	1N 4002	2B	
D506~D509	2058106100	1N 4002	3A	
D510, D511	2058106100	ZENER DZ 15	3A	
D512	2058106100	ZENER DZ 09	3A	
D513	2058599109	ZENER DZ 16	3B	
D514, D515	2058106100	1N 4002	3B	
D517~D522	2058306101	1N 4148	3C	
D524~D527	2058100105	1N 5402	3E	
<b>• COILS</b>				
L501, L502	2648001010	Inductor 0.5μH		
<b>• FUSES</b>				
F101, F102	5508212031	31.8mm 1A/250V	A, B	
F103	5508212331	31.8mm 0.3A/250V	2A	A, B
F105	5508213031	31.8mm 5A/250V	2B	A, B
F103	5508301135	20mm T 200mA/250V	2A	C,D,E,F
F101, F102	5508301935	20mm T 800mA/250V	3A	C,D,E,F
F105	5508302735	200mm T 3.15A/250V	2B	C,D,E,F
<b>• POWER TRANSFORMERS</b>				
	2828062601	POWER TRANS	A	
	2828062707	STAND BY TRANS	A	
	2828062807	POWER TRANS	B,E	
	2828062907	STAND BY TRANS	B,C,D,F	
	2828063907	POWER TRANS	C,D,F	
<b>• CAPACITORS</b>				
C501	3409210131	Elect 100μF 16V	2A	
C502, C503	3679203120	Mylar 0.02μF 100V	2A	
C505, C504	3679203120	Mylar r 0.02μF 100V	2A	
C507, C506	3409210261	Elect 1000μF 35V	3A	
C508, C509	3409222241	Elect 220μF 25V	3A	
C510	3479210971	Elect 1μF 50V	2B	
C511	3409233131	Elect 330μF 16V	3B	
C512	3409210131	Elect 100μF 16V	4B	
C513	3579101130	Ceramic 100P 50V	3B	
C514	3479222031	Elect 22μF 16V	3B	
C515	3579101130	Ceramic 100P 50V	4B	
C516	3479210971	Elect 1μF 50V	4B	
C517	3579309030	Ceramic 3P 50V	4C	
C518, C520	3479247031	Elect 47μF 16V	3C, 3CA	
C519	3479247041	Elect 47μF 25V	4C	
C521	3609334120	Mylar 0.033μF 100V	4C	
C522	3579309030	Ceramic 3P 50V	4C	
C523	3579101130	Ceramic 100P 50V	4D	
C524	3479222971	Elect 2.2μF 50V	4D	
C525	3479210971	Elect 1μF 50V	4D	
C526	3479222041	Elect 22μF 16V	3D	
C527, C528	3579101130	Ceramic 100P 50V	3D	
C529	3479247971	Elect 4.7μF 50V	3C	
C530, C531	3679473120	Mylar 0.047μF 100V	2C	
C532, C533	3419568280	Elect 6800μF 63V	3D	
C534, C535	3609334120	Mylar 0.33μF 100V	3E	
C536	3479210061	Elect 10μF 35V	3B	
C537	3479210971	Elect 1μF 50V	3B	
C538	3479210971	Elect 1μF 50V	3C	
C539, C540	3579102530	Ceramic 1000P 50V	4B/4D	
C541	3679203120	Mylar 0.22μF 150V	4E	D
C542	3679203120	Mylar 0.02μF 150V	3E	D
C543	3579103530	Ceramic 0.01μF 500V	3E	D
C544	3579473530	Ceramic 0.047μF	3E	D
C545	3579473530	Ceramic 0.047μF	4E	D

Ref.No	Parts No.	Description	Position	Version
<b>• RESISTORS</b>				
R501	3039339472	M. O 3.3 ohm 1W	2A	
R502	3039330472	M. O 33 ohm 1W	2B	
R503, R504	3039270472	M. O 27ohm 1W	3A	
R507, R510	3039339472	M. O 3.3 ohm 1W	3A, 2B	
R559, R562	3039100472	M. O 10 ohm 1W	3C	
R565, R566	3039100472	M. O 10 ohm 1W	3C	
R590, R591	3039100472	M. O 270 ohm 1W	1A	
R560, R561	3039278472	C.E 0.27 ohm 1W	3C	
R521	3009470272	C.F 47 ohm 1/4W	3B	
R553	3009101272	C.F 100 ohm 1/4W	4C	
R505, R509	3069471970	C.F 470 ohm 1/6W	3D	
R506, R508	3069681970	C.F 680 ohm 1/6W	3A	
R512	3069273970	C.F 27K ohm 1/6W	3B	
R513, R514	3069105970	C.F 1M ohm 1/6W	3B	
R516	3069183970	C.F 18K ohm 1/6W	3B	
R515	3069101970	C.F 100 ohm 1/6W	3B	
R518	3069182970	C.F 1.8K ohm 1/6W	3B	
R519	3069203970	C.F 20K ohm 1/6W	3B	
R520	3069472970	C.F 4.7K ohm 1/6W	4B	
R522, R523	3069202970	C.F 27K ohm 1/6W	3C	
R524	3069473970	C.F 47K ohm 1/6W	2C	
R525	3069102970	C.F 1K ohm 1/6W	3C	
R526	3360332970	C.F 3.3K ohm 1/6W	3C	
R527, R530	3069332970	C.F 3.3K ohm 1/6W	3C	
R528	3069121970	C.F 120 ohm 1/6W	3C	
R529	3069104970	C.E 100K ohm 1/6W	3C	
R530	3069332970	C.F 3.3K ohm 1/6W	3C	
R531	3069102970	C.F 1K ohm 1/6W	3C	
R532	3069121970	C.F 120 ohm 1/6W	3D	
R533	3069332970	C.F 3.3K ohm 1/6W	3D	
R540	3069222970	C.F 2.2K ohm 1/6W	3D	
R541	3069153970	C.F 15K ohm 1/6W	3C	
R542, R544	3069472970	C.F 4.7K ohm 1/6W	3C	
R543	3069153970	C.F 15K ohm 1/6W	3C	
R545	3069563970	C.F 56K ohm 1/6W	4D	
R546	3069751970	C.F 750 ohm 1/6W	4D	
R547	3069183970	C.F 18K ohm 1/6W	4C	
R548	3069222970	C.F 2.2K ohm 1/6W	4C	
R549	3069222970	C.F 2.2K ohm 1/6W	4C	
R550	3069101970	C.F 100 ohm 1/6W	4C	
R551	3069102970	C.F 1K ohm 1/6W	4C	
R552	3069473970	C.F 47K ohm 1/6W	4C	
R544, R555	3069222970	C.F 2.2K ohm 1/6W	4C	
R556	3069183970	C.F 18K ohm 1/6W	4C	
R557	3069751970	C.F 750 ohm 1/6W	4C	
R558	3069563970	C.F 56K ohm 1/6W	4B	
R570, R569	3069332970	C.F 3.3K ohm 1/6W	4B	

## EQ BOARD 4002017510

Ref.No.	Parts No.	Description	Position	Version
<b>• ICS</b>				
IC701	2168020101	NJM 4560S	1A	
<b>• TRANSISTORS</b>				
Q701	2208606104	KTC 1815Y	1B	
Q702, Q703	2208606104	KTC 1815Y	1B	
Q704, Q705	2208606104	KTC 1815Y	1B	
Q706, Q707	2208606104	KTC 1815Y	1C	
Q708, Q709	2208606104	KTC 1815Y	1C	
Q710	2208606104	KTC 1815Y	1D	
Q514	2028406121	KTD 1466	1E	
Q515, Q516	2028406124	KTB 1366	1E, 2C	
<b>• CAPACITORS</b>				
C701, C702	3479222041	Elect 22 $\mu$ F 16V	1A	
C703, C708	3579101130	Ceramic 100pF 50V	1A	
C704, C706	3479247971	Elect 4.7 $\mu$ F 50V	1A	
C705, C707	3579101130	Ceramic 100pF 50V	1A	
C709, C710	3479247971	Elect 4.7 $\mu$ F 50V	1B	
C711	3679393120	Mylar 0.039 $\mu$ F 100V	1B	
C712	3479247971	Elect 2.2 $\mu$ F 50V	1B	
C713	3679123120	Mylar 0.012 $\mu$ F 100V	1B	
C714	3679393120	Mylar 0.039 $\mu$ F 100V	1B	
C715	3479222971	Elect 2.2 $\mu$ F 50V	1B	
C716	3479247871	Elect 0.47 $\mu$ F 50V	1B	
C717	3069683120	Mylar 0.068 $\mu$ F 100V	1B	
C719	3679123120	Mylar 0.012 $\mu$ F 100V	1B	
C718	3479247871	Elect 0.47 $\mu$ F 50V	1B	
C720	3679392120	Mylar 0.0039 $\mu$ F 100V	1B	
C721	3679822210	Mylar 0.0082 $\mu$ F 100V	1C	
C722	3679292120	Mylar 0.0039 $\mu$ F 100V	1C	
C723	3679683120	Mylar 0.068 $\mu$ F 100V	1C	
C724	3679153120	Mylar 0.015 $\mu$ F 100V	1C	
C725	3379332120	Mylar 0.0033 $\mu$ F 100V	1C	
C726	3679153120	Mylar 0.015 $\mu$ F 100V	1C	
C727	3679822210	Mylar 0.0082 $\mu$ F 100V	1C	
C728	3579391130	Ceramic 390pF 50V	1C	
C729	3679332120	Mylar 0.0033 $\mu$ F 100V	1D	
C730	3579391130	Ceramic 390nF 50V	1C	
<b>• RESISTORS</b>				
R701, R703	3069101970	C.F 100 ohm 1/2W	1A	
R703, R704	3069472970	4.7K ohm 1/2W	1A	
R705	3069563970	C.F 56K ohm 1/2W	1A	
R706	3069391970	C.F 390 ohm 1/2W	1B	
R707	3069512970	C.F 5.1K ohm 1/2W	1B	
R708	3069122970	C.F 1.2K ohm 1/2W	1B	
R709	3069563970	C.F 56K ohm 1/2W	1B	
R710	3069391970	C.F 390 ohm 1/2W	1B	
R711	3069512970	C.F 5.1K ohm 1/2W	1B	
R712, R717	3069391970	C.F 390 ohm 1/2W	1B	
R713, R716	3069563970	C.F 56K ohm 1/2W	1B	
R714, R718	3069512970	C.F 5.1K ohm 1/2W	1B	
R715, R720	3069122970	C.F 1.2K ohm 1/2W	1B	
R721, R725	3069563970	C.F 56K ohm 1/2W	1C	
R722, R726	3069391970	C.F 390 ohm 1/2W	1C	
R723, R727	3069512970	C.F 5.1K ohm 1/2W	1C	
R724, R728	3069122970	C.F 1.2K ohm 1/2W	1C	
R729, R733	3069563970	C.F 56K ohm 1/2W	1C	
R730, R734	3069391970	C.F 390 ohm 1/2W	1C	
R731, R735	3069512970	C.F 5.1K ohm 1/2W	1C	
R732, R736	3069122970	C.F 1.2K ohm 1/2W	1C	
R737, R741	3069563970	C.F 56K ohm 1/2W	1C	
R738, R742	3069391970	C.F 390 ohm 1/2W	1C	
R739, R743	3069512970	C.F 5.1K ohm 1/2W	1C	
R745, R740	3069122970	C.F 1.2K ohm 1/2W	1C	
R744	3069222970	C.F 2.2K ohm 1/2W	1D	
R746	3069104970	C.F 100K ohm 1/2W	1D	
R747	3069104970	C.F 100K ohm 1/2W	1D	

## TUNER BOARD 4002017600

Ref.No.	Parts No.	Description	Position	Version
<b>• ICS</b>				
IC101	2168017128	LA 1266	2D	
IC102	2168411105	HA 12016	4D	
IC103	2138017112	LM 7001	1C	
IC104	2168000114	MC 4558D	3D	
IC201	2168220104	NJM 4558DD	2B	
IC202	2168017132	LC 7821	3B	
IC203	2138017108	LA 4966	4A, B	
<b>• TR/FETS</b>				
Q1	2018213100	FET 3SK/74L	1A	
Q2, Q3, Q5	2008406103	TR KTC 1923Y	1B, 1C	
Q4	2018206110	FET KTK 161	1B	
Q101	2008409101	TR LM 9018F	2B	
Q102, Q103	2208606104	KTC 1815Y TR	3C, 4C	
Q105	2208606104	TR KTC 1815Y	3C, 4C	
Q106, Q107	2208606104	TR KTC 1815Y	3C, 4C	
Q109	2208606104	TR KTC 1815Y	3C, 4C	
Q114, Q115	2208606104	TR KTC 1815Y	1D, 3B	
Q203	2208606104	TR KTC 1815Y	1D, 3B	
Q306, Q307	2208606104	TR KTC 1815Y	1D, 1E	
Q104, Q108	2208606104	TR KTC 1815Y	4C, 3C, 1D	
Q112	2208606104	KTC 1815Y	4C, 3C, 1D	
Q113, Q201	2208206105	TR KTA 1015Y	1D, 3C, 3B	
Q202	2208206105	TR KTA 1015Y	1D, 3C, 3B	
Q110	2208606108	TR KTC 2240BL	1C	
Q111	2018211100	FET 2SK 168A	1C	
<b>• COILS</b>				
L1	2648001410	ANT COIL A	1A	
L2	2648001400	ANT COIL B	1A	AB, C, EF
L3	2648001410	RF(1) COIL A	1A	
L4	2648001390	RF(1) COIL B	1A	A, B, C, EF
L5, L2, L4	2648001400	RF(2) COIL A	1B, 1A	D
L6	2638001060	FM OSC COIL	1C	
T101	2838001030	FM IFT	1B	
T102	2838501110	FM DET(A)	2C	
T103	2838501210	FM DET(B)	2C	
T104	2648001250	AM OSC	2D	
T105	2638001150	AM Matching COIL	2D	
T106	2648001250	AM IFT	2D, 2E	
T107, T108	2658001050	MPX(19/38K Hz)	3C, 4C	
B.P.F	3938001005	B.P.F BW4	1A	D
L101F	2648601430	COIL 20.8mH	3C	D
L201, L202	2648601010	COIL IND 2.2mH	1A	
<b>• DIODES</b>				
D1, D2	2058819107	Varactor KV 1310Z	1A	
D3, D4	2058819107	Varactor KV1310Z	1B	
D5, D6	2058819106	Varactor KV1236Z	2D	
D106	2058599104	Zener Diode DZ5.6	4E	
D101~D105	2058306101	1N 4148	3D, 3E, 2E	
D107~D113	2058306101	1N 4148	4E, 3D, 1E	
D201	2058306101	1N 4148	3D	
<b>• CAPACITORS</b>				
C1	3529309210	Ceramic 3P(CH)	1A	
C2, C5, C9	3529220210	Ceramic 22P(CH)	1A, 1B	D
C3	3579101130	Ceramic 100P	1A	
C4	3579102130	Ceramic 1000P	1A	
C6, C12	3579103530	Ceramic 0.01	1A, 1B	
C7, C13	3579203530	Ceramic 0.02	2A, 1B	
C8	3529809210	Ceramic 8P(CH)	1A	AB, C, E, F
C10	3529809210	Ceramic 8P(CH)	1B	D
C14	3579473530	Ceramic 0.047	1B	
C15	3529209210	Ceramic 2P(CH)	1B	
C16	3529330210	Ceramic 33P(CH)	1B	
C17	3579103530	Ceramic 0.01	1B	
C18	3529150110	Ceramic 15P(RH)	1B	
C19	3579103530	Ceramic 0.01	1B	
C20	3529809110	Ceramic 8P(RH)	1C	
C21	3529209210	Ceramic 2P(CH)	1C	
C22	3529109210	Ceramic 1P(CH)	1C	
C101	3409222131	Elect 220 $\mu$ F 16V	2B	
C102	3579203530	Ceramic 0.02	2B	
C103	3579473530	Ceramic 0.047 $\mu$ F	2B	
C104, C105	3579203530	Ceramic 0.02	2C	
C106	3479210061	Elect 10 $\mu$ F 35V	2C	
C107	3579102530	Ceramic 0.01 $\mu$ F	3C	

Ref.No.	Parts No.	Description	Position	Version
C108	3579820130	Ceramic 82P	3C	D
C110,C111	3579101130	Ceramic 100P	3D	D
C111	3579221130	Ceramic 220P	3D	A,B,C,E,F
C112	3679332120	Mylar 0.0033 $\mu$ F	3D	
C113	3679473120	Mylar 0.047 $\mu$ F	3D	
C114	3679223120	Mylar 0.022 $\mu$ F	3D	
C109,C117	3479210971	Elect 1 $\mu$ F 50V	3D,2D	
C116	3479210971	Elect 1 $\mu$ F 50V	2D	
C115	3479247971	Elect 4.7 $\mu$ F 50V	3D	
C119	3479222031	Elect 22 $\mu$ F 16V	2D	
C118	3579470130	Ceramic 47P	2D	
C120,C124	3579103530	Ceramic 0.01	2E, 2D	
C122	3619471110	Poly 470P	2D	
C125	3579103530	Ceramic 0.01 $\mu$ F	2D	
C126	3409222131	Elect 220 $\mu$ F 16V	3D	
C127	3479222971	Elect 2.2 $\mu$ F 50V	3D	
C128,C129	3479222031	Elect 22 $\mu$ F 16V	3D	
C132,C134	3479233971	Elect 3.3 $\mu$ F 50V	4E,3E	
C133	3479210971	Elect 1 $\mu$ F 50V	4E	
C139,C142	3479222971	Elect 2.2 $\mu$ F 50V	3D,4D	
C130,C131	3679152120	Mylar 0.0015 $\mu$ F	4D	A
C130,C131	3679102120	Mylar 0.001	4D	B,C,DEF
C137	3679473120	Mylar 0.047 $\mu$ F	3D	
C136	3619102110	Poly 1000 $\mu$ F	3E	
C138	3619681110	Poly 680 $\mu$ F	3D	
C159	3579221130	Ceramic 220P	4D	
C140,C141	3679392120	Mylar 0.0039	3D,4D	
C143	3479210971	Elect 1 $\mu$ F 50V	34C	
C144,C145	3479210061	Elect 10 $\mu$ F 35V	4C	
C146	3579102530	Ceramic 1000P	4C	
C147,C148	3579101130	Ceramic 100P	3B,3C	
C153	3579472530	Ceramic 0.0047 $\mu$ F	1C	
C155	3579103530	Ceramic 0.01 $\mu$ F	1C	
C150,C151	3529180210	Ceramic 18P(CH)	1C	
C149	3479247021	Elect 47 $\mu$ F 10V	1C	
C152	3479210971	Elect 1 $\mu$ F 50V	1C	
C156	3479210061	Elect 10 $\mu$ F 35V	1C	
C158	3479210971	Elect 1 $\mu$ F 50V	1B	
C201,C202	3579100130	Ceramic 10P	2A	D
C203,C212	3579100130	Ceramic 10P	2A	D
C204,C213	3579101130	Ceramic 100P	2A	
C218,C217	3579101130	Ceramic 100P	2B,2B	
C205,C214	3479247971	Elect 4.7 $\mu$ F 50V	2A	
C217,C216	3479210121	Elect 100 $\mu$ F 10V	2A,2B	
C211,C221	3479247041	Elect 47 $\mu$ F 25V	2B	
C209,C224	3479247871	Elect 0.47 $\mu$ F 50V	2B	
C207,C222	3679182120	Mylar 0.0018	2B	
C208,C223	3679562120	Mylar 0.0056	2B,3B	
C210,C220	3679562120	Mylar 0.0056	2B,3B	
C225~C232	3579331130	Ceramic 330P	2A,3A,4A	
C237~C250	3579101130	Ceramic 100P	2A,3A,4A	D
C251	3479210971	Elect 1 $\mu$ F 50V	3A,3B	
C252,C253	3479247041	Elect 47 $\mu$ F 25V	3B	
C262	3479210061	Elect 10 $\mu$ F 35V	3B	
C263	3479247971	Elect 4.7 $\mu$ F 50V	3C	
C264	3579203530	Elect 0.02 $\mu$ F	3B	
<b>• RESISTORS</b>				
R1,R3	3069104970	C.F 100K ohm $\frac{1}{2}$ W	1A	
R2	3069105970	C.F 1M ohm $\frac{1}{2}$ W	1A	
R4,R21	3069473970	C.F 47K ohm $\frac{1}{2}$ W	1A,1C	
R5	3069560970	C.F 56 ohm $\frac{1}{2}$ W	2A	
R6,R8,R18	3069333970	C.F 33K ohm $\frac{1}{2}$ W	1A,1B	
R9	3069333970	C.F 33K ohm $\frac{1}{2}$ W	1B	D
R10	3069272970	C.F 2.7K ohm $\frac{1}{2}$ W	1B	
R11	3069471970	C.F 470 ohm $\frac{1}{2}$ W	1B	
R12	3069273970	C.F 27K ohm $\frac{1}{2}$ W	1B	
R13,R20	3069561970	C.F 560 ohm $\frac{1}{2}$ W	1A	
R14	3069181970	C.F 180 ohm $\frac{1}{2}$ W	1B	
R15	3069332970	C.F 3.3K ohm $\frac{1}{2}$ W	1B	
R16,R23	3069101970	C.F 100 ohm $\frac{1}{2}$ W	1B,1C	
R17	3069103970	C.F 10K ohm $\frac{1}{2}$ W	1B	
R19	3069822970	C.F 8.2K ohm $\frac{1}{2}$ W	1B	
R22	3069474970	C.F 470K ohm $\frac{1}{2}$ W	1C	
R102	3069561970	C.F 560 ohm $\frac{1}{2}$ W	2B	
R103	3069471970	C.F 470 ohm $\frac{1}{2}$ W	2B	
R104,R107	3069332970	C.F 3.3K ohm $\frac{1}{2}$ W	2B,2C	
R105	3069331970	C.F 330 ohm $\frac{1}{2}$ W	2C	
R108,R109	3069103970	C.F 10K ohm $\frac{1}{2}$ W	2C,3C	
R110	3069183970	C.F 18K ohm $\frac{1}{2}$ W	3D	A
R110	3069333970	C.F 33K ohm $\frac{1}{2}$ W	3D	B,D,C,E,F

Ref.No.	Parts No.	Description	POSITION	VERSION
R111,R112	3069103970	C.F 10K ohm $\frac{1}{2}$ W	3D	
R113	3069222970	C.F 2.2K ohm $\frac{1}{2}$ W	3D	
R114,R120	3069104970	C.F 100K ohm $\frac{1}{2}$ W	3D	
R116	3069220970	C.F 22 ohm $\frac{1}{2}$ W	3A	
R117	3069683970	C.F 68K ohm $\frac{1}{2}$ W	2E	
R119	3069333970	C.F 33K ohm $\frac{1}{2}$ W	3E	
R122	3069753970	C.F 75K ohm $\frac{1}{2}$ W	3D	
R123	3069562970	C.F 5.6K ohm $\frac{1}{2}$ W	3E	
R124	3069102970	C.F 1K ohm $\frac{1}{2}$ W	4E	
R125, R128	3069332970	C.F 3.3K ohm $\frac{1}{2}$ W	4D	
R126,R127	3069223970	C.F 22K ohm $\frac{1}{2}$ W	4D	
R129,R132	3069473970	C.F 47K ohm $\frac{1}{2}$ W	4D	
R130	3069392970	C.F 3.9K ohm $\frac{1}{2}$ W	4D	
R131,R133	3069332970	C.F 3.3K ohm $\frac{1}{2}$ W	3D,4D	
R134~R137	3069332970	C.F 3.3K ohm $\frac{1}{2}$ W	4C,4D	
R138	3069104970	C.F 100K ohm $\frac{1}{2}$ W	4D	
R139,R144	3069103970	C.F 10K ohm $\frac{1}{2}$ W	4E,4C	
R140	3069563970	C.F 56K ohm $\frac{1}{2}$ W	4E	
R141,R142	3069332970	C.F 3.3K ohm $\frac{1}{2}$ W	3C	
R143,R145	3069473970	C.F 47K ohm $\frac{1}{2}$ W	4C	
R146,R153	3069103970	C.F 10K ohm $\frac{1}{2}$ W	4C,3C	
R147,R152	3069473970	C.F 47K ohm $\frac{1}{2}$ W	3C	
R148,R151	3069104970	C.F 100K ohm $\frac{1}{2}$ W	3C	
R149,R150	3069223970	C.F 22K ohm $\frac{1}{2}$ W	3C	
R153	3069472970	C.F 4.7K ohm $\frac{1}{2}$ W	3C	
R154,R157	3069103970	C.F 10K ohm $\frac{1}{2}$ W	3C,4C	
R158	3069473970	C.F 47K ohm $\frac{1}{2}$ W	4C	
R159	3069153970	C.F 15K ohm $\frac{1}{2}$ W	4B	
R160,R161	3069473970	C.F 47K ohm $\frac{1}{2}$ W	4B	
R164	3069181970	C.F 180 ohm $\frac{1}{2}$ W	1C	
R165,R166	3069102970	C.F 1K ohm $\frac{1}{2}$ W	1C	
R167,R168	3069101970	C.F 100 ohm $\frac{1}{2}$ W	1C	
R169~R172	3069103970	C.F 10K ohm $\frac{1}{2}$ W	1C,1D	
R173,R174	3069104970	C.F 100K ohm $\frac{1}{2}$ W	12D,1D	
R178	3069472970	C.F 4.7K ohm $\frac{1}{2}$ W	1C	
R176	3069102970	C.F 100 ohm $\frac{1}{2}$ W	1C	
R179	3069223970	C.F 22K ohm $\frac{1}{2}$ W	1E	
R201,R203	3069102970	C.F 1K ohm $\frac{1}{2}$ W	2A	
R202,R204	3069104970	C.F 100K ohm $\frac{1}{2}$ W	2A	
R205,R211	3069913970	C.F 91K ohm $\frac{1}{2}$ W	2A	
R206,R212	306911970	C.F 910 ohm $\frac{1}{2}$ W	2A	
R207,R213	3069433970	G.F 43K ohm $\frac{1}{2}$ W	2B,3B	
R208,R214	3069564970	C.F 560K ohm $\frac{1}{2}$ W	2B,3B	
R209,R215	3069471970	C.F 470 ohm $\frac{1}{2}$ W	2B,3B	
R210,R216	3069104970	C.F 100K ohm $\frac{1}{2}$ W	2B	
R219~R232	3069102970	C.F 1K ohm $\frac{1}{2}$ W	2A,3A,4A	
R233	3069104970	C.F 100K ohm $\frac{1}{2}$ W	3B	
R234	3069472970	C.F 4.7K ohm $\frac{1}{2}$ W	3B	
R235,R236	3069103970	C.F 10K ohm $\frac{1}{2}$ W	3B	
R237,R238	3069103970	C.F 10K ohm $\frac{1}{2}$ W	3C	
R239	3069473970	C.F 47K ohm $\frac{1}{2}$ W	3C	
R240	3069222970	C.F 2.2K ohm $\frac{1}{2}$ W	3C	
R367,R370	3069472970	C.F 4.7K ohm $\frac{1}{2}$ W	1E,1D	
R368,R371	3069223970	C.F 2.2K ohm $\frac{1}{2}$ W	1D,1E	
R369,R272	3069103970	C.F 10K ohm $\frac{1}{2}$ W	1E	
R101,R175	3009101270	C.F 100 ohm $\frac{1}{2}$ W	2B,1C	
R118	3009471270	C.F 470 ohm $\frac{1}{2}$ W	2E	
R156,R121	3009560270	C.F 56 ohm $\frac{1}{2}$ W	3C	
R177	3069101270	C.F 100 ohm $\frac{1}{2}$ W	1C	
R155,R156	3009101270	C.F 100 ohm $\frac{1}{2}$ W	3C	
R163	3009560270	C.F 56 ohm $\frac{1}{2}$ W	1D	
R217,R218	3009101270	C.F 100 ohm $\frac{1}{2}$ W	2B	
R241,R242	3009101270	C.F 100 ohm $\frac{1}{2}$ W	3B	
<b>• SEMI FIXED RESISTORS</b>				
VR101	3248333220	33KB	3D	
VR102	3248333220	3.3KB	3D	
VR103	3248332220	3.3KB	3E	
VR104	3248322420	220KB	4D	
VR105	3248322420	220KB	4B	

## LCD BOARD 4002017610

Parts No.	Parts No.	Description	POSITION	VERSION
<b>• ICS</b>				
IC301	2130309103	MB 88P 515B	2D	
IC302	3908017131	LC 7582	1A	
<b>• TRANSISTORS</b>				
Q301	2208606104	KTC 1815Y	1C	
Q302	2208606104	KTC 1815Y	2B	
Q303	2208606104	KTC 1815Y	2A	
Q304	2208606104	KTC 1815Y	2A	
Q305, Q306	2208606104	KTC 1815Y	1A	
<b>• X-TAL</b>				
	3908017131	TAL 6MHz	2C	
<b>• DIODES</b>				
D301, D302	2308220507	LED(DIRECT)	1C, 1D	
D304	2058306101	1N 4148	2A	
D305	2058306101	1N 4148	2A	
D306	2058101150	1N 4148	2C	
<b>• CAPACITORS</b>				
C301	3479210971	Elect 1μF 50V	2C	
C302, C303	3529330210	Ceramic 33P(CH)	2C	
C304	3479210061	Elect 10μF 35V	2B	
C305	3579681230	Ceramic 680P	2A	
C307	3579103530	Ceramic 0.01μF 50V	2A	
C306	3479210061	Elect 10μF 35V	2A	
C308	3439110412	Back up 0.1F 5.5V	1C	
C309	3479210061	Elect 10μF 35V	1A	
C310, C311	3478247971	Elect 4.7μF 50V	1A	
C312, C313	3579221130	Ceramic 220pF 50V	1D	
C314, C315	3579151130	Ceramic 150pF 50V	1B, D	
C316, C317	3479222871	Elect 0.22μF 50V	1D	
<b>• RESISTORS</b>				
R301	3069222970	C.F 2.2K ohm 1/6W	2D	
R302~R304	3069473970	C.F 47K ohm 1/6W	2D	
R305, R306	3069473970	C.F 47K ohm 1/6W	2D, 2C	
R307	3069473970	C.F 47K ohm 1/6W	2C	
R308	3069222970	C.F 2.2K ohm 1/6W	2C	A
R308	3069104970	C.F 100K ohm 1/6W	2C	BCDEF
R309, R310	3069222970	C.F 2.2K ohm 1/6W	2C	
R311~R314	3069473970	C.F 47K ohm 1/6W	2C	
R315, R316	3069101970	C.F 100 ohm 1/6W	2C, 2B	
R317, R318	3069101970	C.F 100 ohm 1/6W	2B	
R319	3069101970	C.F 100 ohm 1/6W	2B	
R320~R323	3069473970	C.F 47K ohm 1/6W	2B	
R324	3069560970	C.F 56 ohm 1/6W	2B	
R325, R326	3069102970	C.F 1K ohm 1/6W	2C	
R327	3069103970	C.F 10K ohm 1/6W	2C	
R328	3069223970	C.F 22K ohm 1/6W	2B	
R329	3069223970	C.F 22K ohm 1/6W	2A	
R330	3069513970	C.F 51K ohm 1/6W	2A	
R331	3069104970	C.F 100K ohm 1/6W	2A	
R332	3069101970	C.F 100 ohm 1/6W	2A	
R333	3069103970	C.F 10K ohm 1/6W	2A	
R335	3069331970	C.F 330 ohm 1/6W	2A	
R336	3069472970	C.F 4.7K ohm 1/6W	2A	
R337	3069103970	C.F 10K ohm 1/6W	2A	
R338	3069103970	C.F 10K ohm 1/6W	2A	
R339	3069103970	C.F 10K ohm 1/6W	12A	
R340, R341	3469103970	C.F 10K ohm 1/6W	12A	
R342	3969103970	C.F 10K ohm 1/6W	12A	
R355, R356	3069272970	C.F 2.7K ohm 1/6W	1D	
R357, R358	3069823970	C.F 82K ohm 1/6W	1D	
R359, R361	3069102970	C.F 1K ohm 1/6W	1D	
R360	3069104970	C.F 100K ohm 1/6W	1D	

## SW BOARD 4002017620

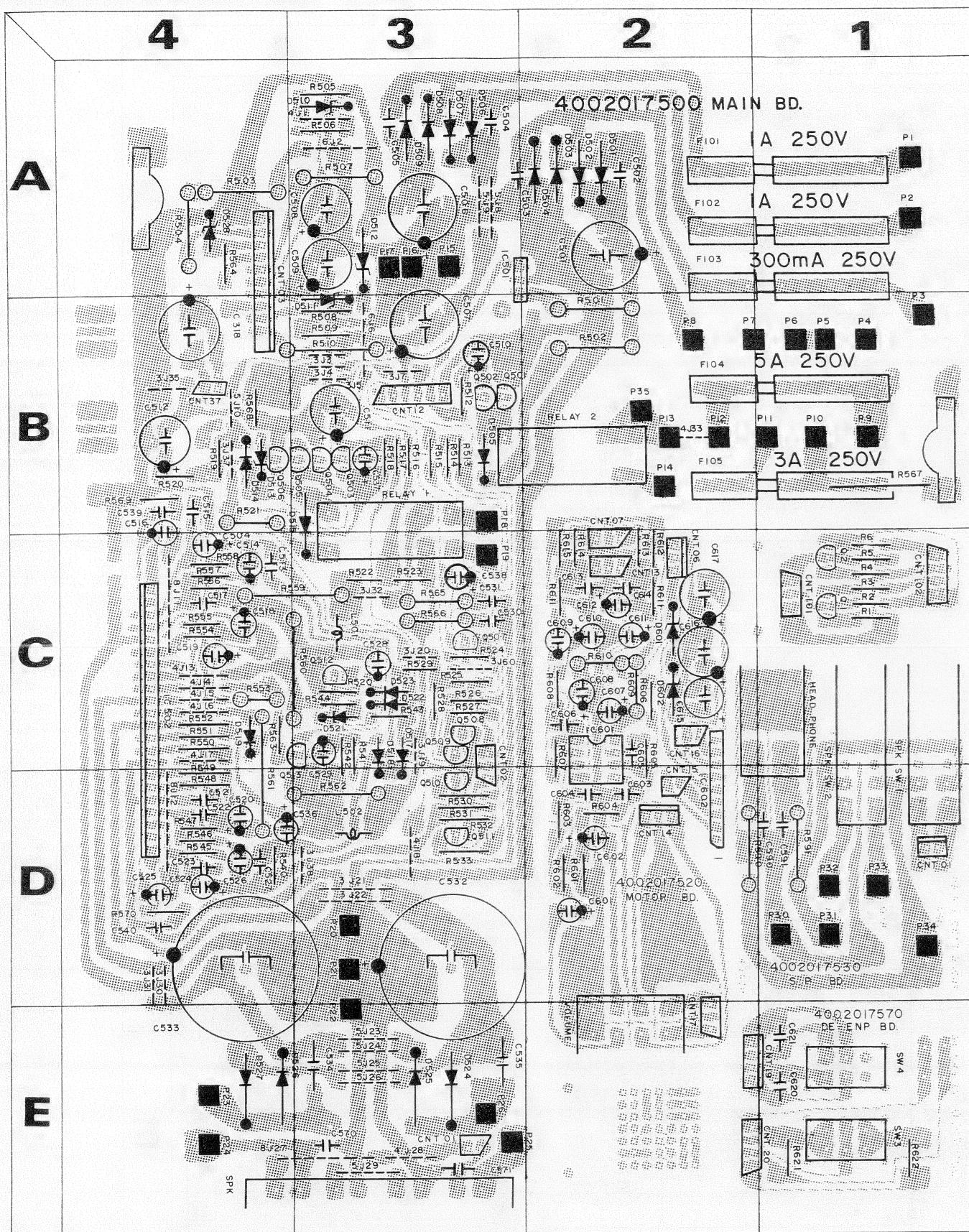
Ref.No.	Parts.No.	Description	Position	Version
<b>• RESISTORS</b>				
R0	3069392970	C.F 3.9K ohm 1/6W	1D	
R1	3069392970	C.F 3.9K ohm 1/6W	1D	
R2	3069392970	C.F 3.9K ohm 1/6W	1C	
R3	3069392970	C.F 3.9K ohm 1/6W	1C	
R4	3069392970	C.F 3.9K ohm 1/6W	1B	
R5	3069392970	C.F 3.9K ohm 1/6W	1A	
R6	3069392970	C.F 3.9K ohm 1/6W	1D	
R7	3069392970	C.F 3.9K ohm 1/6W	1C	
R363	3069122970	C.F 1.2K ohm 1/6W	1A	
<b>• SENSOR</b>				
SENSOR	2138000129	SENSOR SBX 1483	1A	
<b>• DIODE</b>				
D303	2308220507	LED	1A	

## MOTOR BOARD 4002017520

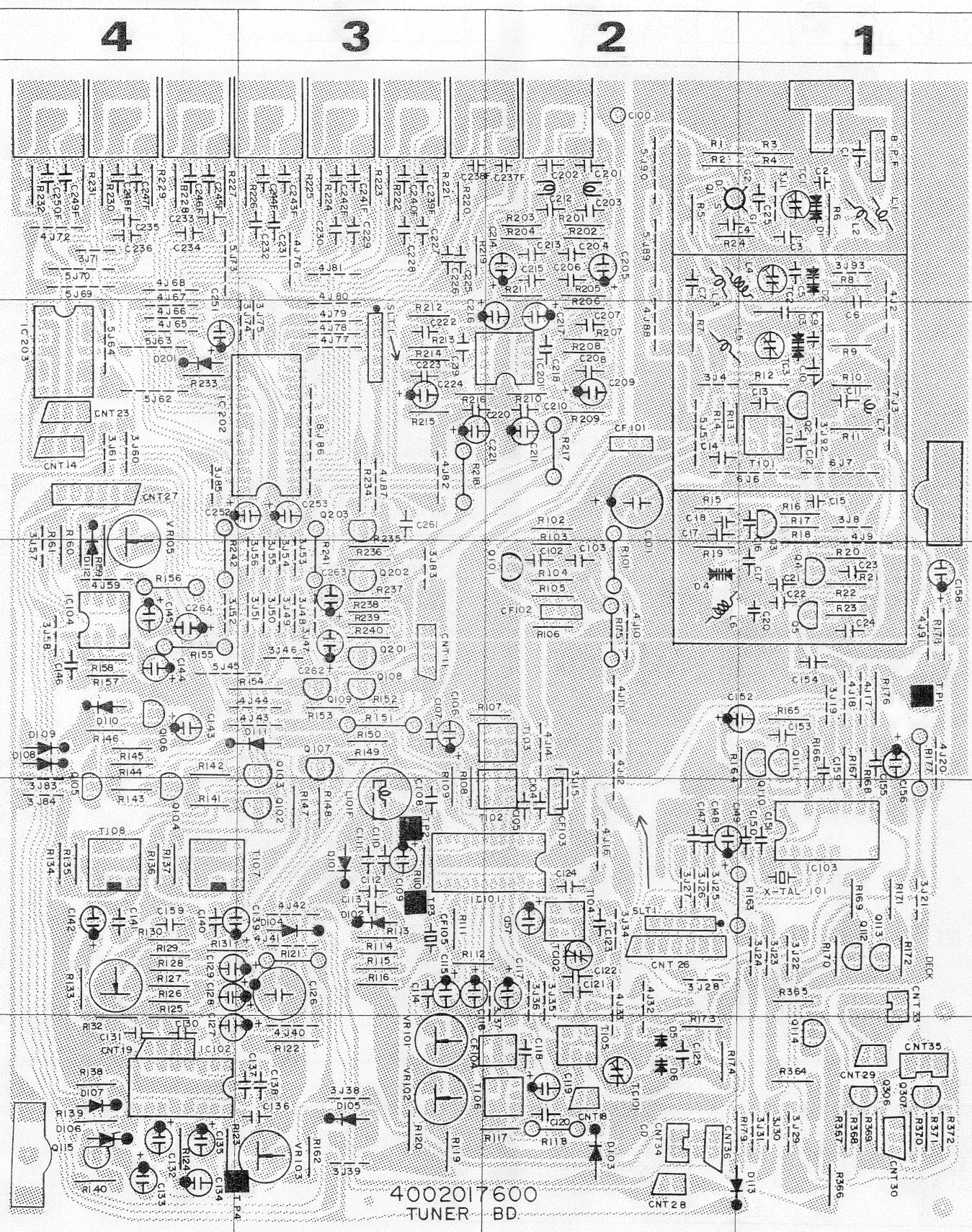
Ref.No.	Parts No.	Description	Position	Version
<b>• ICS</b>				
IC601	2168020101	NJM 4560D	2C	
IC602	2168022107	BA 6208	2CD	
<b>• DIODES</b>				
D601, D602	2058599100	Zener DZ032	2C	
<b>• CAPACITORS</b>				
C601, C602	3479247971	Elect 4.7μF 50V	2D	
C603, C604	3579101130	Ceramic 100pF 50V	2C	
C605, C606	3579331130	Ceramic 330pF 50V	2C	
C607, C608	3479220021	Elect 22μF 10V	2C	
C609, C612	3479247971	Elect 4.7μF 50V	2C	
C610, C611	3479210121	Elect 100μF 10V	2C	
C613, C614	3679102120	Mylar 0.001μF 100V	2C	
C615, C616	34C9210131	Elect 100μF 16V	2C	
C617	3409247121	Elect 470μF 10V	2C	
<b>• RESISTORS</b>				
R601, R602	3069104970	C.F 100K ohm 1/6W	2D	
R603, F604	3069102970	C.F 1K ohm 1/6W	2D	
R605, R607	3069472970	C.F 4.7K ohm 1/6W	2C	
R606, R608	3069821970	C.F 820 ohm 1/6W	2C	
R609, R610	3009101272	C.F 100 ohm 1/6W	2C	
R611, R616	3069331970	C.F 330 ohm 1/6W	2C	
R612, R615	3069104970	C.F 100K ohm 1/6W	2B	
R613, R614	3069472970	C.F 4.7K ohm 1/6W	2B	

# Top & Bottom View of P.C Boards

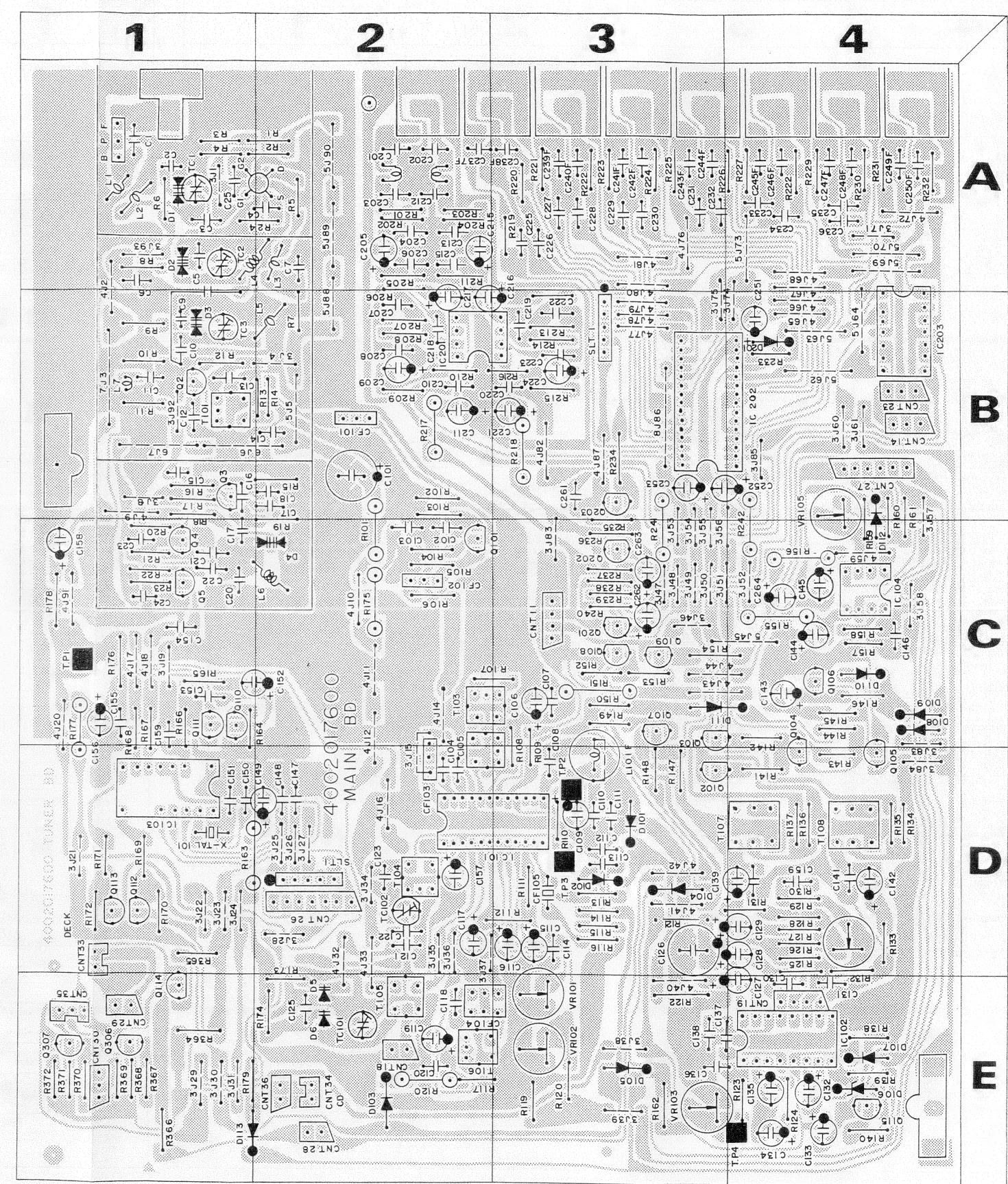
MAIN BOARD 4002017500 —TOP VIEW—

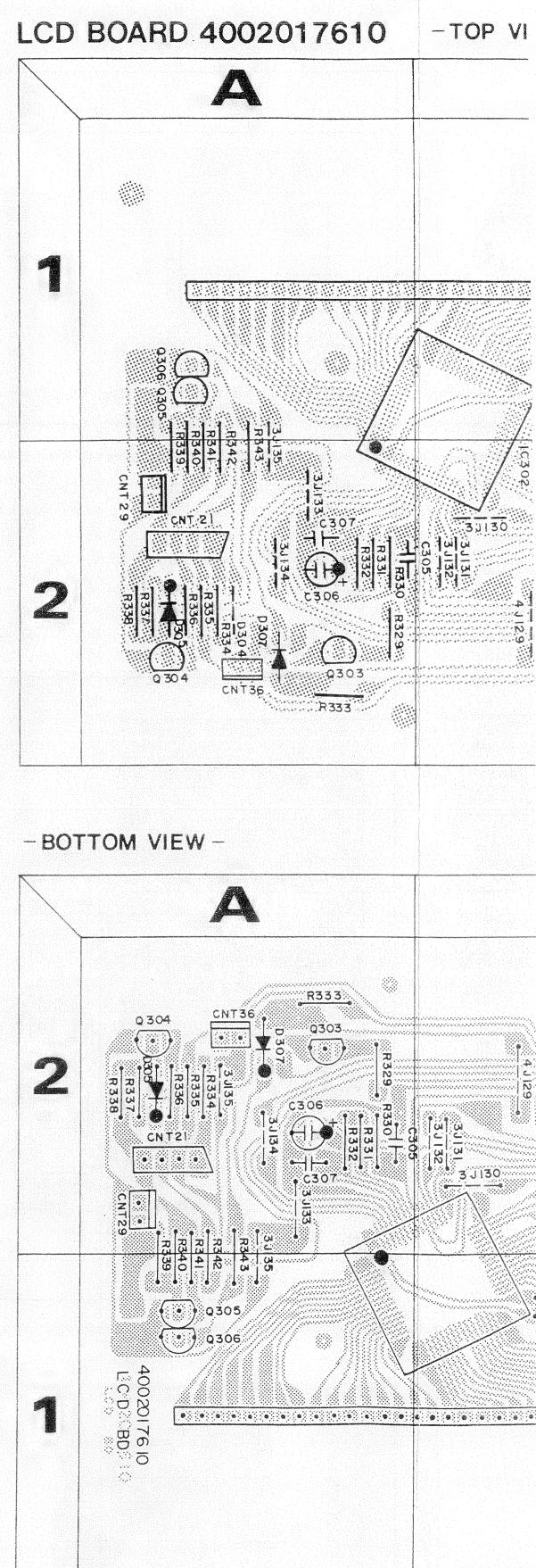
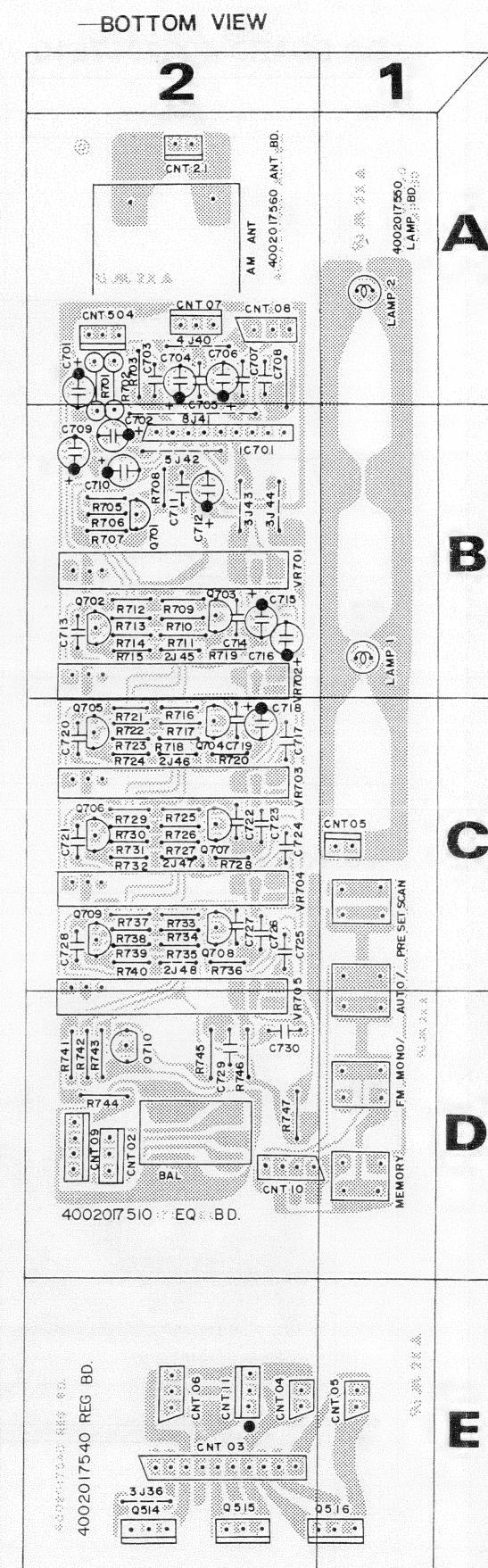
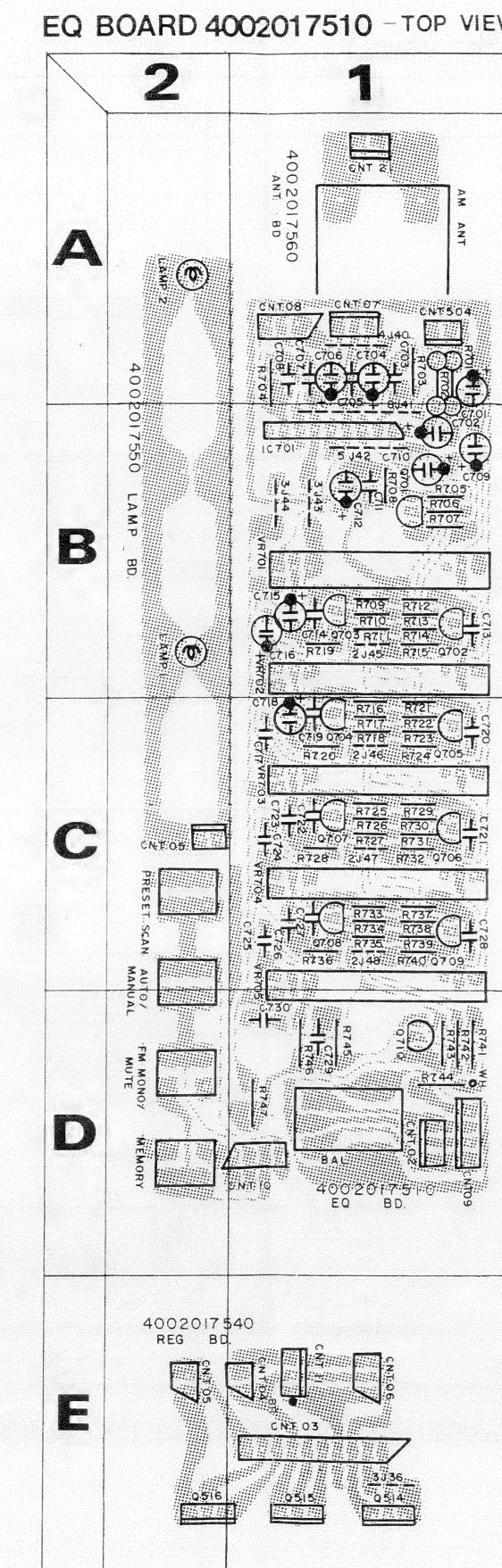
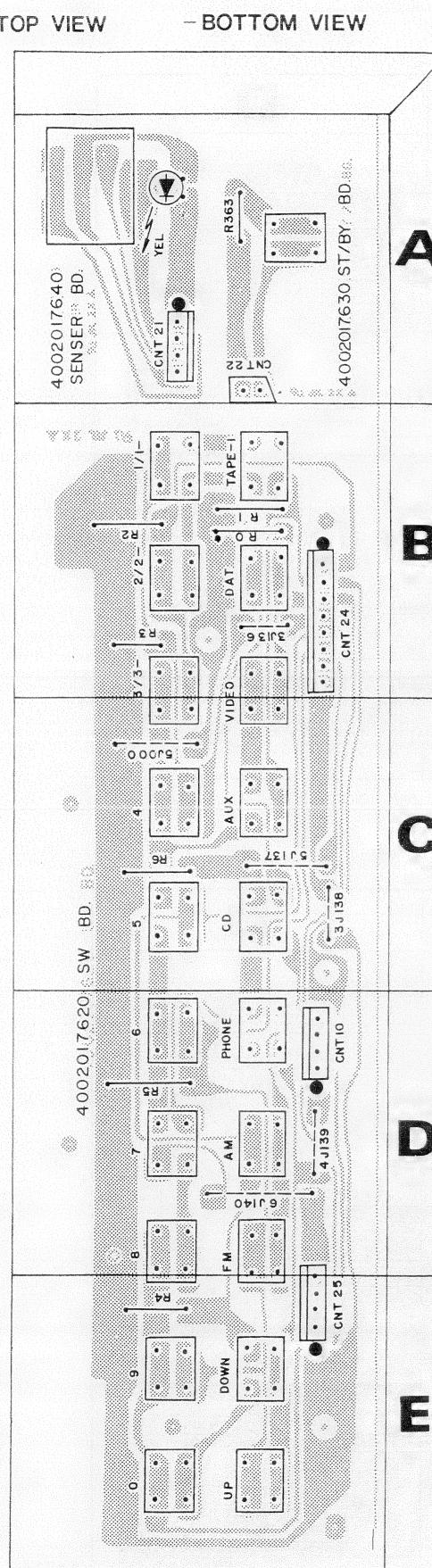
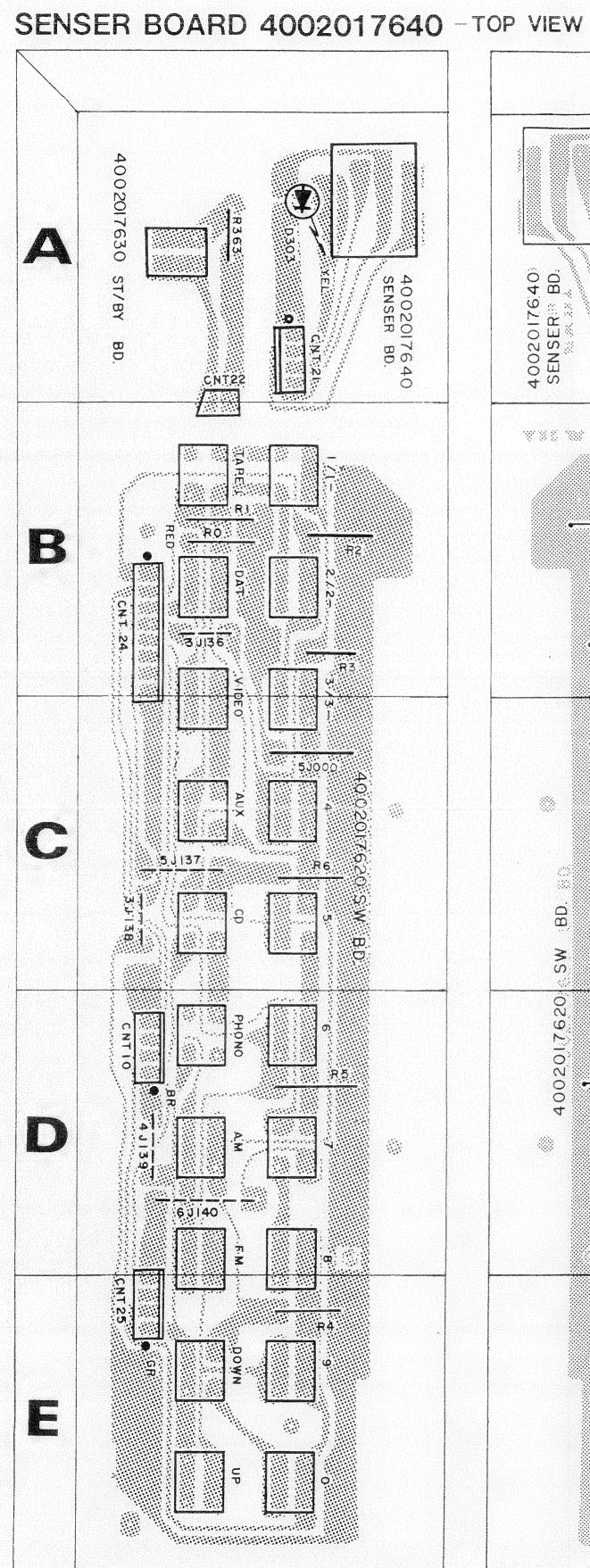


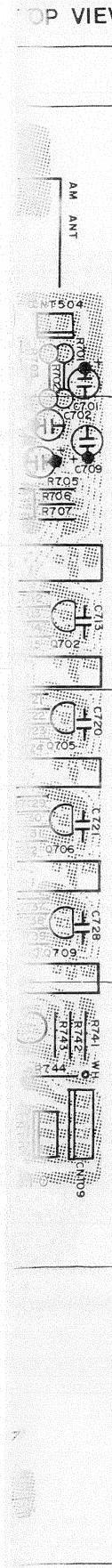
INNER BOARD 4002017600 -TOP VIEW-



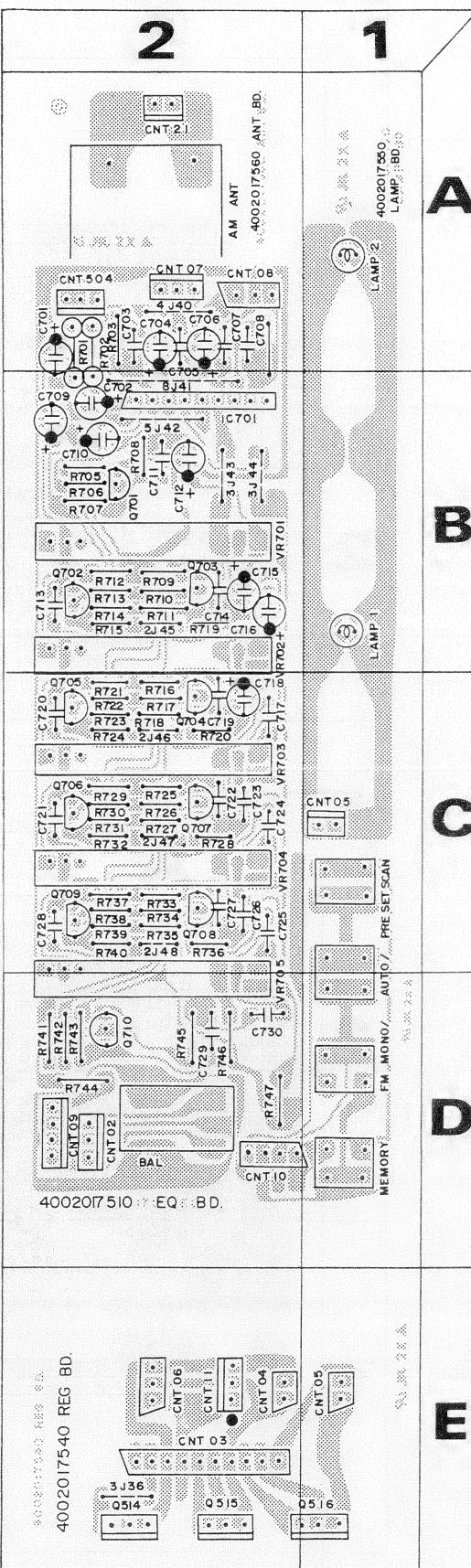
- BOTTOM VIEW -





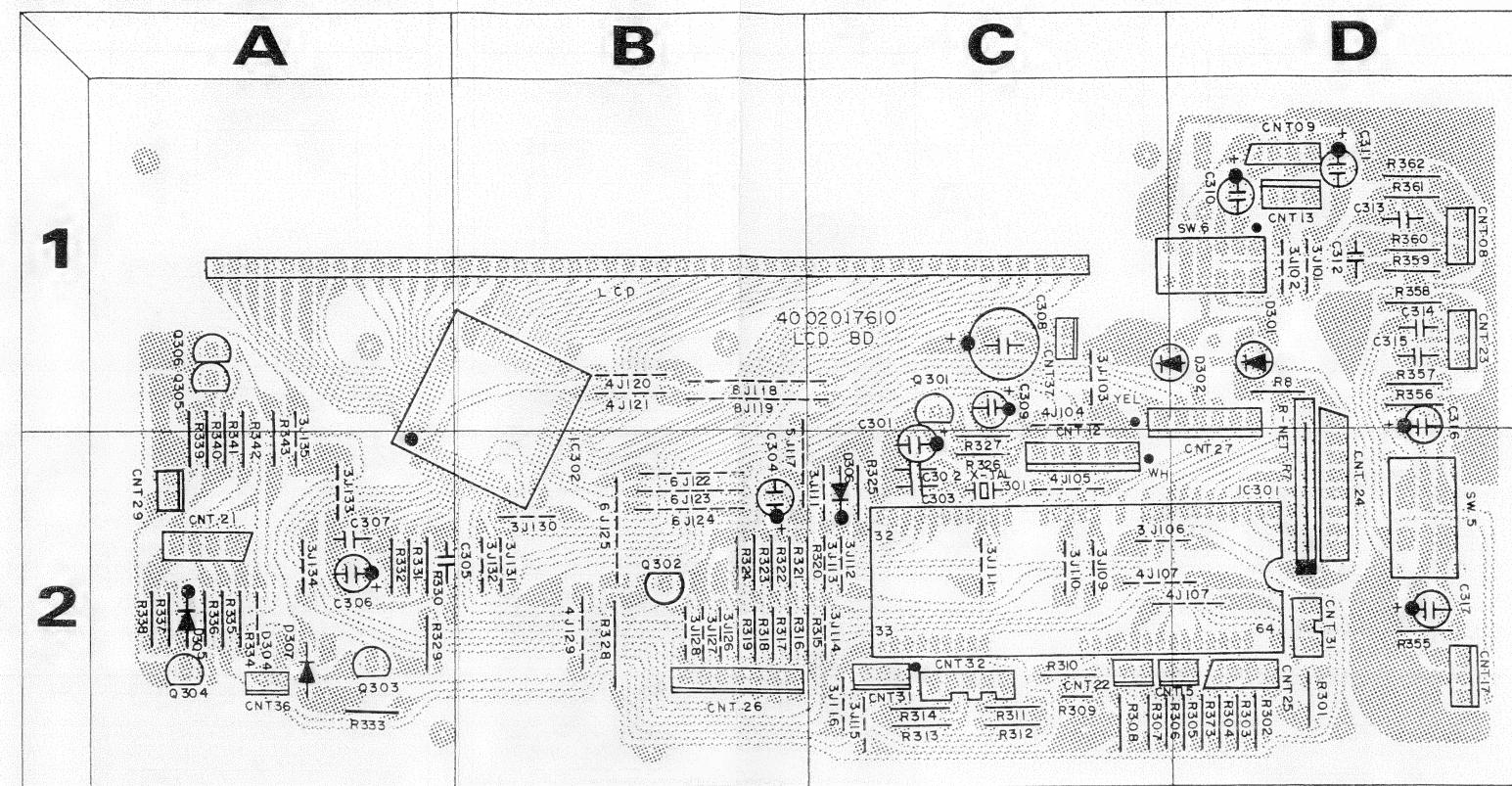


—BOTTOM VIEW

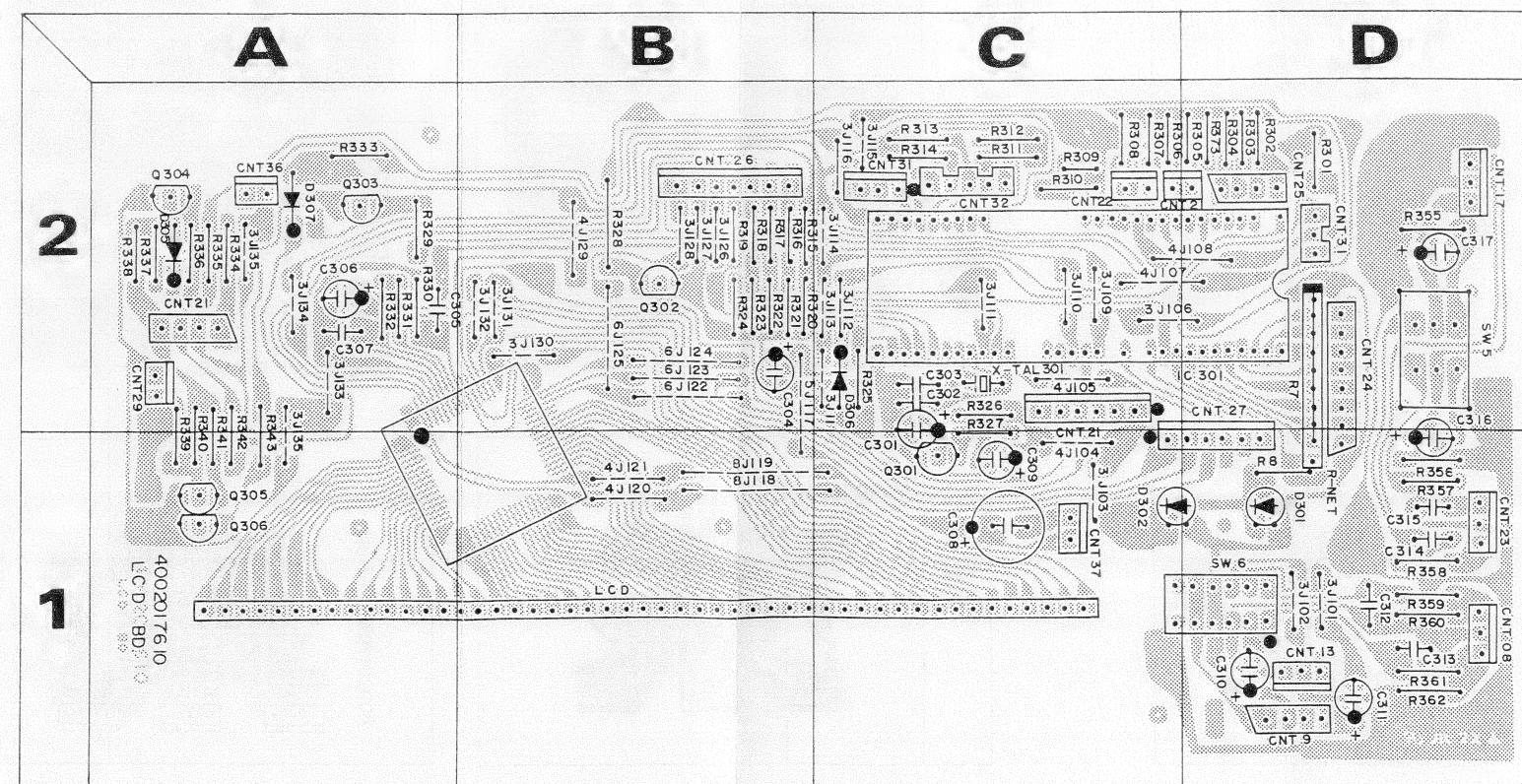


LCD BOARD 400201761

- TOP VIEW

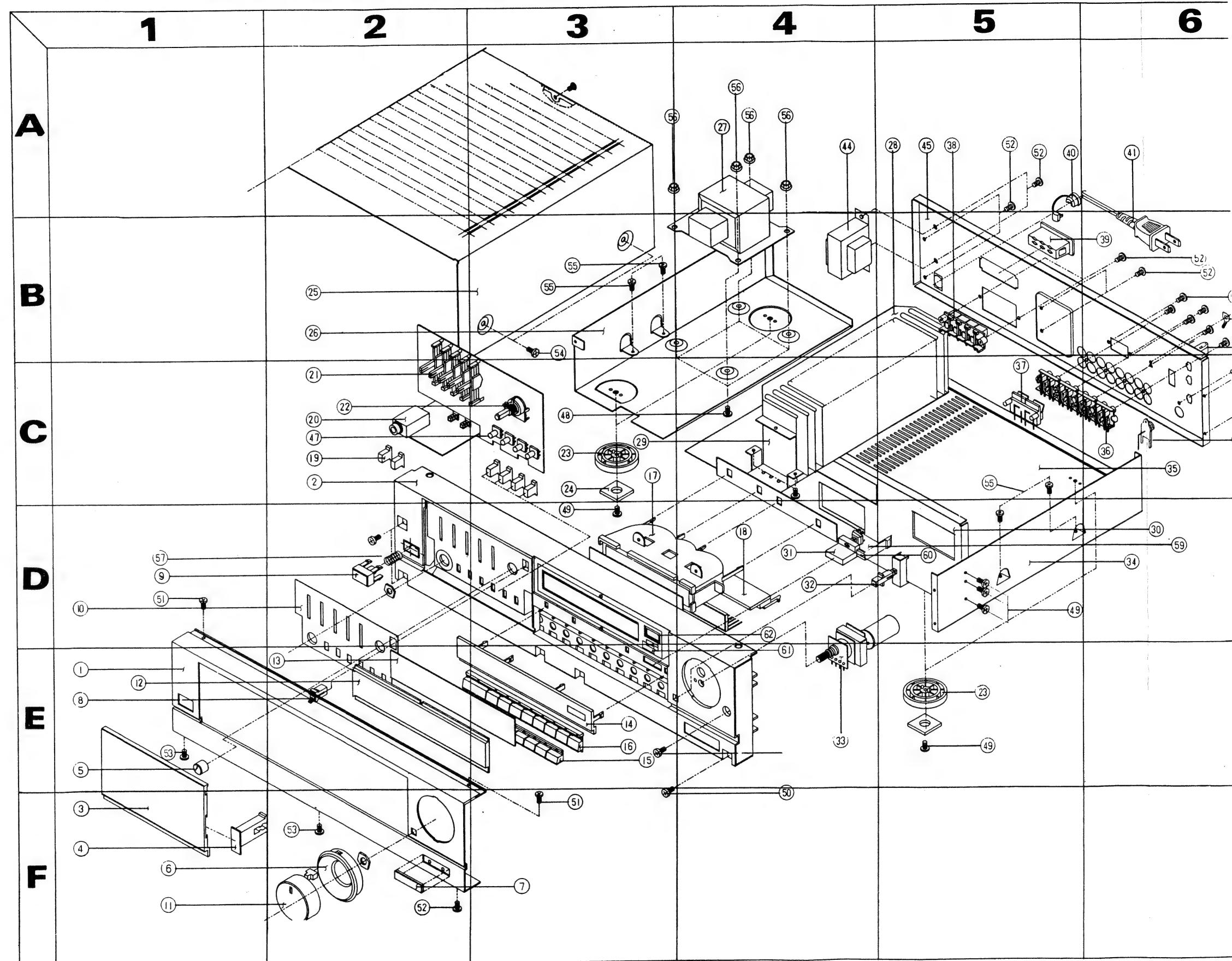


- BOTTOM VIEW

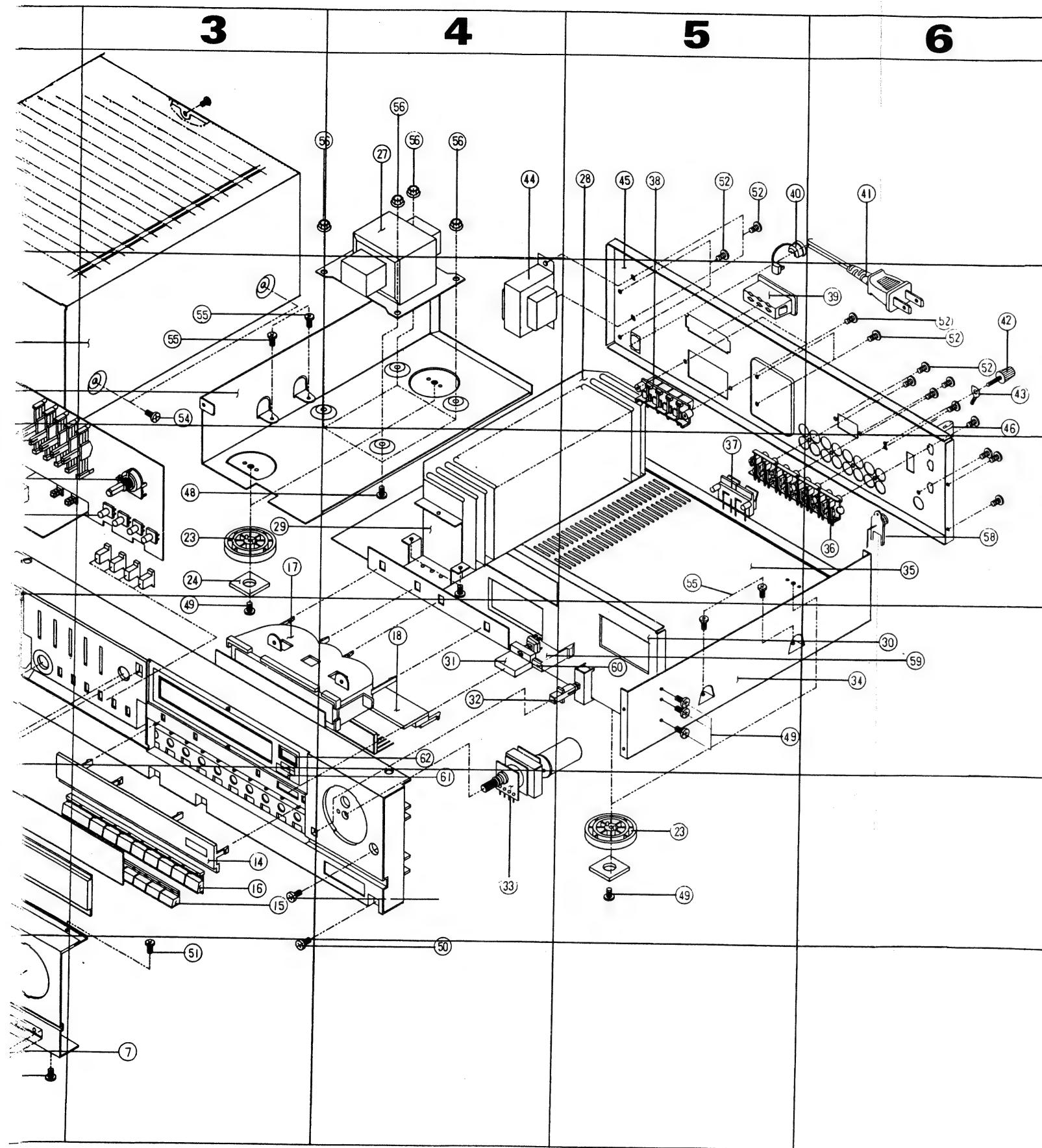


# Mechanical Parts List and Exploded View of Cabinet & Chassis

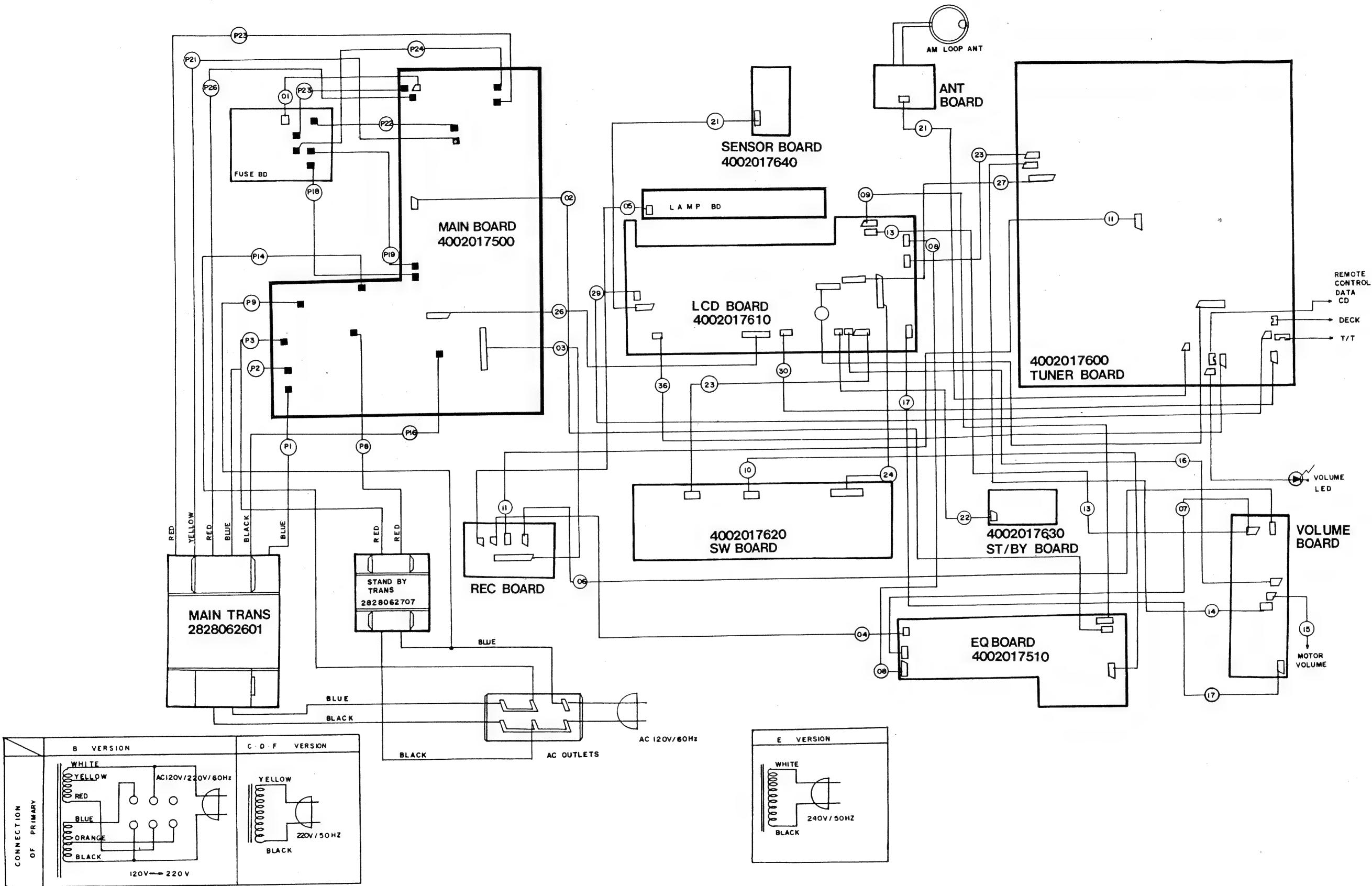
NO.	PARTS NO.	DESCRIPTION	POSITION	Q'TY	VERSION
1	048602015711	PANEL AL	A2	1	
2	048521004511	FRONT BODY	C2	1	
3	048603000511	DOOR	F1	1	
4	6305004010	HINGE DOOR	F1	2	
5	048545052211	KNOB ROTARY	E1	1	
6	8523009210	BEZEL	F2	1	
7	048535019011	BADGE	F2	1	
8	7318000110	LOCKER DOOR	E2	1	
9	048545048211	KNOB POWER	D2	1	
10	04862502711	INNER PLATE	D2	1	
11	048643003711	ROTARY KNOB	F2	1	
12	8553007810	WINDOW	E2	1	
13	048535019511	INLAY	E2	1	
14	048530019111	COVER FRONT	E3	1	
15-1	048543014213	BTN TACT(A)	E3	1	
15-2	048543014214	BTN TACT(B)	E3	1	
16-1	048543014313	BTN PUSH(A)	E3	1	
16-2	048543014314	BTN PUSH(B)	E3	1	
17	6043005610	HOLDER L.C.D	3D	1	
18	6045006910	GUIDE HOLDER	DD	1	
19	8545051310	BTN PUSH	C2	6	
20	4438000810	JACK PHONE	C2	1	
22	3238408310	VR SLIDE	C2	5	
22	3208048410	VR BALANCE	C3	1	
23	046035101421	FOOT	C3	4	
24	6725002110	FOOT CUSHION	C3	4	
25	046122016411	COVER TOP	B3	1	
26	6123619110	FRAME RIGHT	B3	1	
27	2828062607	MAIN PWR X-FMR	A4	1	
28	7503009110	HEAT SINK	C5	1	
29	6505081510	B.K.T.F	C4	1	
30	6122211710	CH. FRONT	D5	1	
31	048545051511	KNOB DIRECT	D4	1	
32	8545051410	BTN COUD	D4	1	
33	3208048410	VOL. MOTOR	D4	1	
34	6122614110	FRAME LEFT	D5	1	
35	6122412310	COVER BOTTOM	C5	1	
36	4438101910	JACK RCA	C6	4	
37	4408001410	TER. B. D	C5	1	
38	4408101360	TER. SPEAKER	B5	1	
39	4448100810	OUT LET AC	B5	1	
40	4448100510	OUT LET AC	B5	2	
40	6518000710	STOPPER CORD	A5	1	
40	6518000711	STOPPER CORD	A5	1	
40	6513000310	STOPPER CORD	A5	1	
41	4308001410	CORD AC	B6	1	
41	4308000430	CORD AC	B6	1	
42	4308003610	CORD AC	B6	1	
42	4465100110	TER. GND	B6	1	
43	4465100210	TER. SCREW	B6	1	
44	2828062707	STDBY-FORMER	B4	1	
45	046102022621	CH. BACK	A1	1	
45	046102022631	CH. BACK	A1	1	
46	046102022641	CH. BACK	A1	1	
46	046102022651	CH. BACK	A1	1	
46	046102022661	CH. BACK	A1	1	
46	046102022671	CH. BACK	A1	1	
46	6518000210	HOLDER ANT	B6	1	
47	4658002610	SW TACT	C3	25	
48	8069140081	SCREW WPM 4x8Y	C4	4	
49	8119230081	SCREW # 2 BTC 3x8Y	E5	4	
50	8119230081	SCREW # 2 BTC 3x8Y	F4	4	
51	8129230081	SCREW FTC 3x8Y	F3	2	
52	8119230083	SCREW # 2 PTC 3x8B	A5	17	
53	8119230083	SCREW # 2 PTC 3x8B	F2	2	
54	8159440083	SCREW WSAM 4x8B	B3	4	
55	8159440081	SCREW WPTC 3x8Y	C5	4	
56	8209540011	NUT FLANCE M4Y GE	C5	4	
57	6555004340	SPRING	D2	1	
58	4355032110	ANT FM	C6	1	
59	4438301110	JACK DIN	C6	1	
59	6045006510	HOLDER L. E. D	D4	1	
60	8535022610	DIFFUSER DIRECT	D4	1	
61	8535022710	DIFFUSER	E3	1	
62	8535019610	FILTER SENSOR	D3	1	



## & Chassis



# Point to Point Wiring Diagram



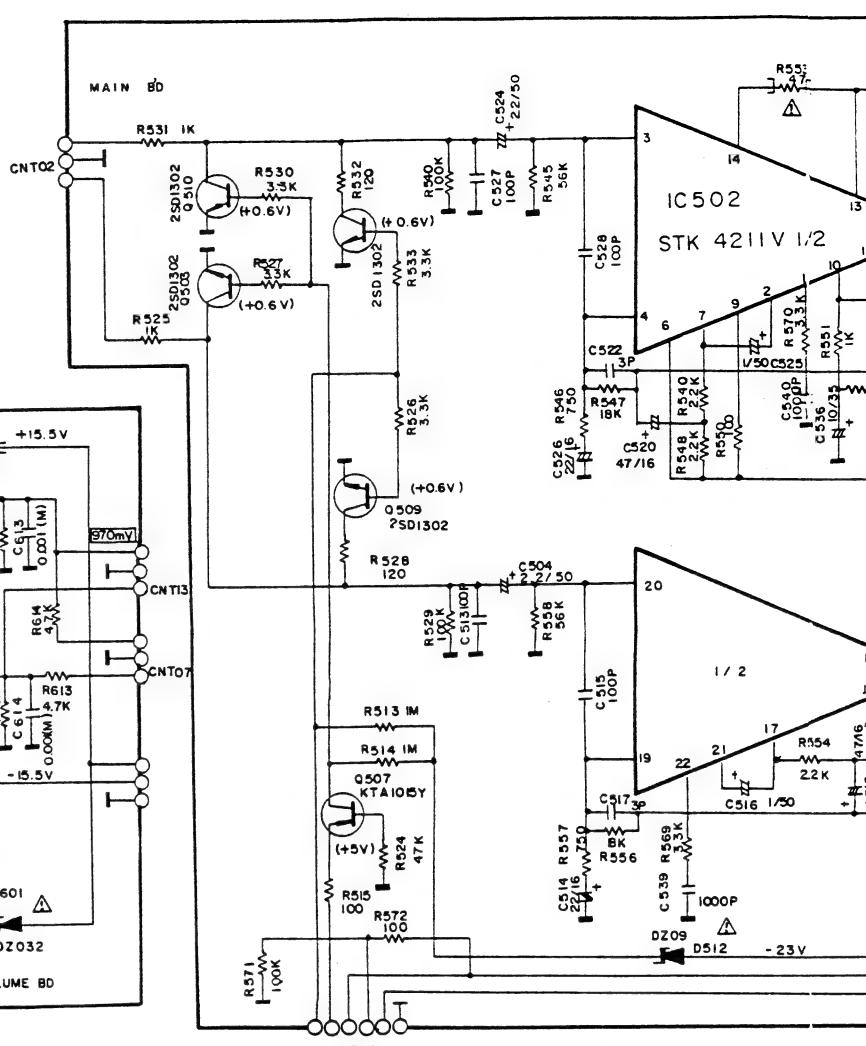
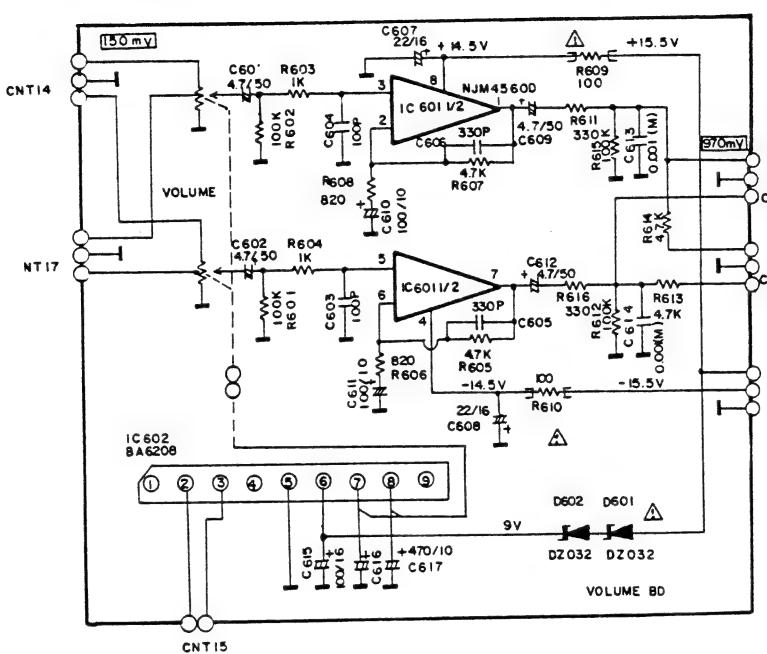
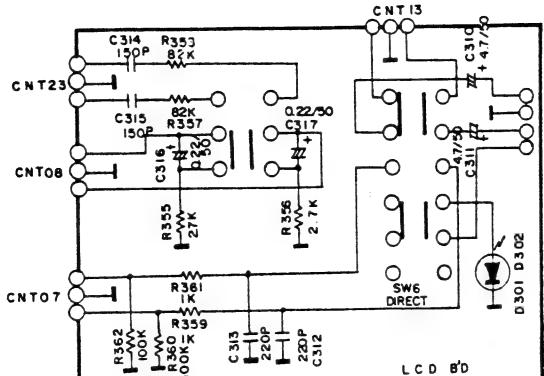
A

B

C

# Schematic D

RA 1240



1

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3

4

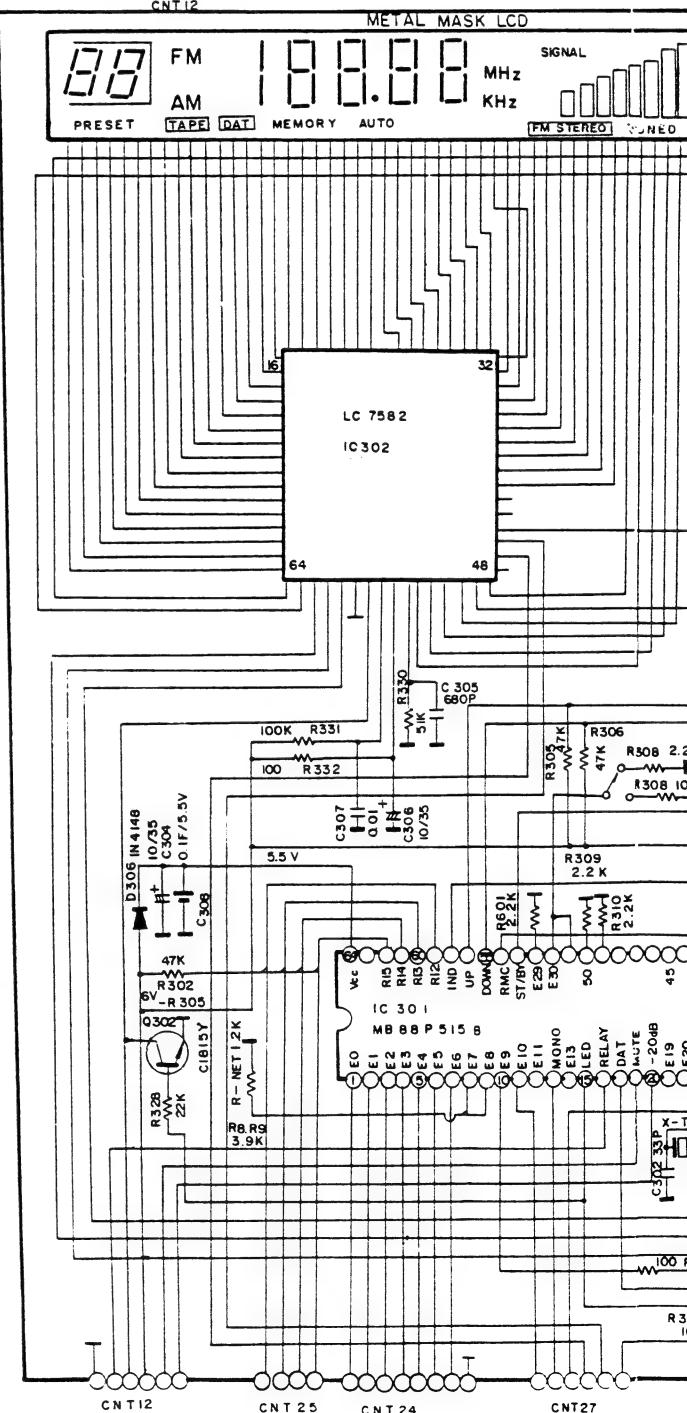
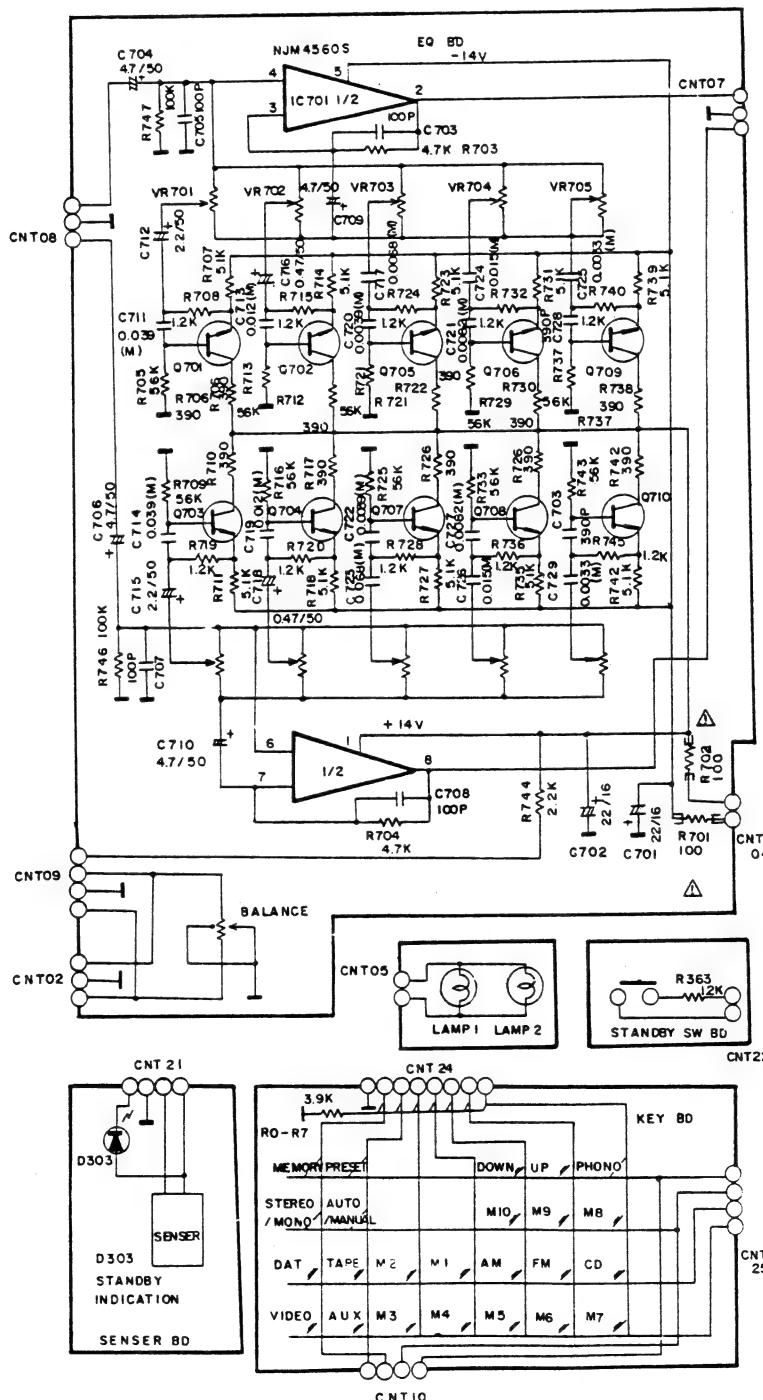
5

A

B

C

D



D

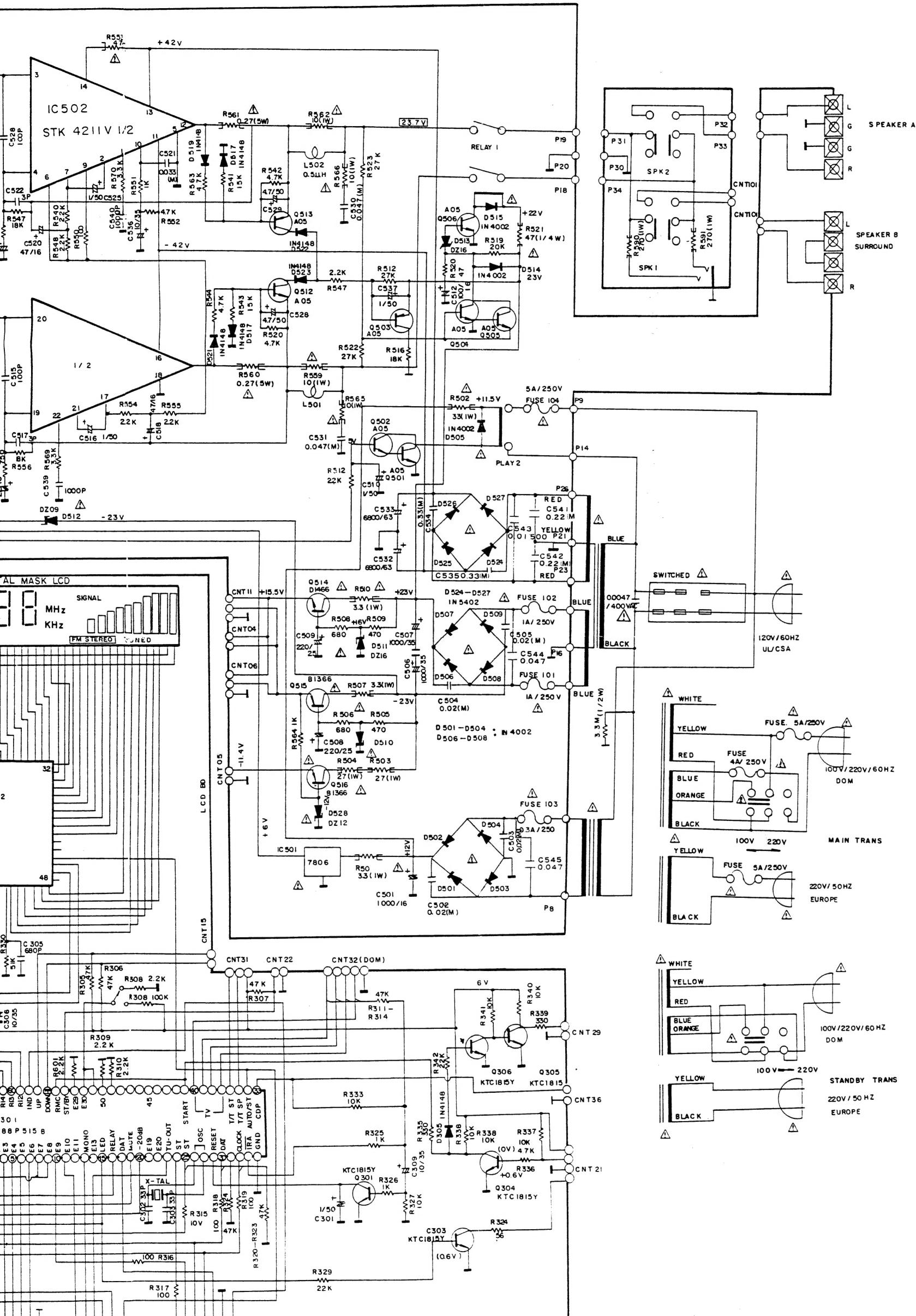
E

F

G

## **Schematic Diagram**

RA 1240R



D

E

F

G

A

B

C

D

**Schematic Diagrams**

RA1240F

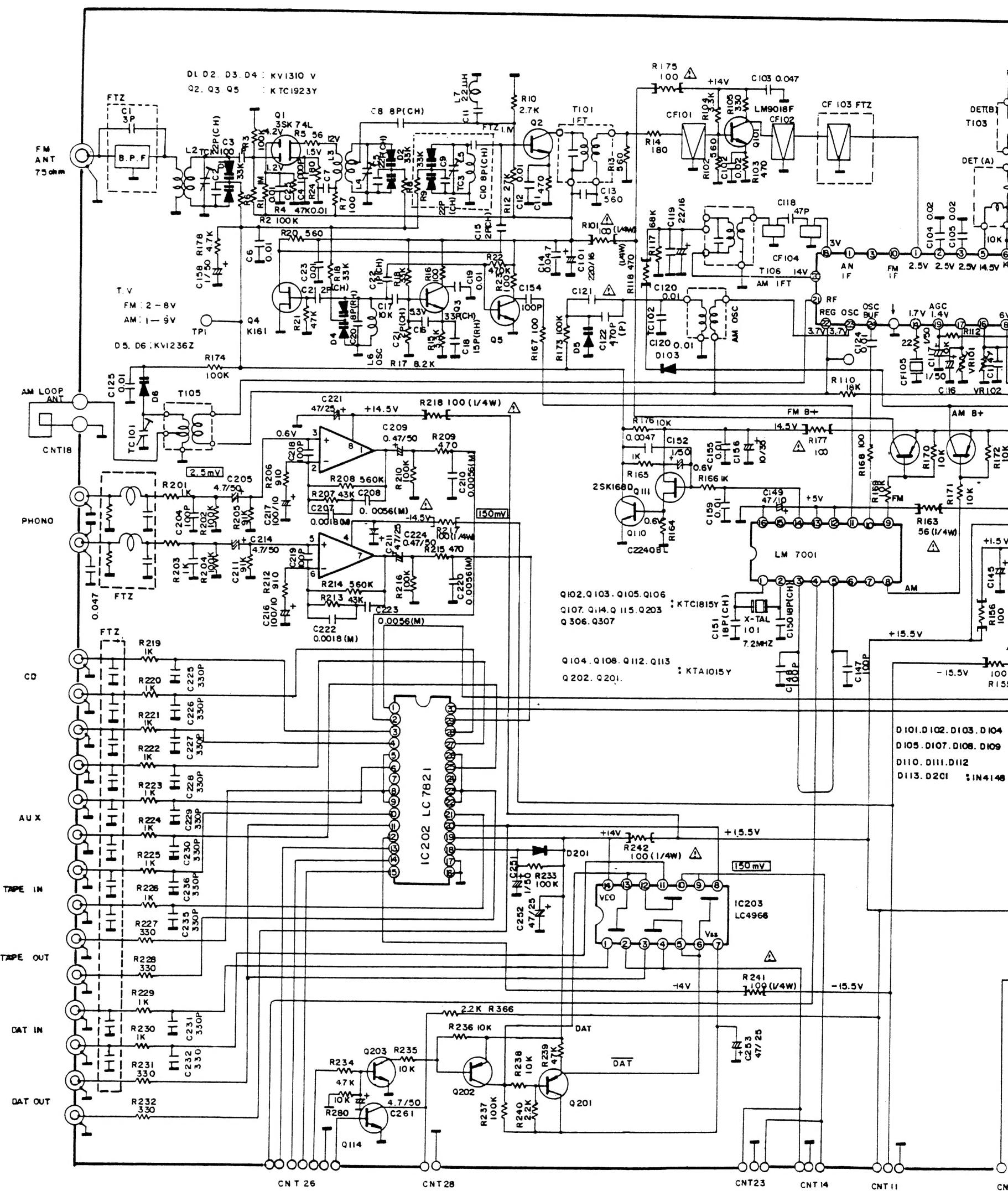
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A

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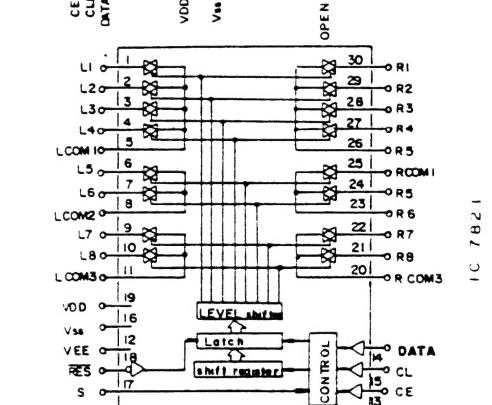
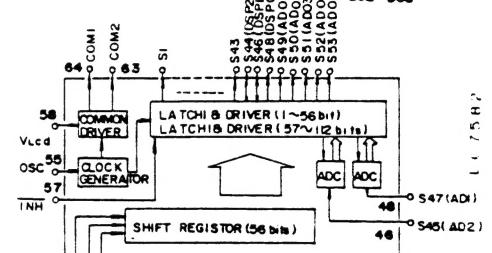
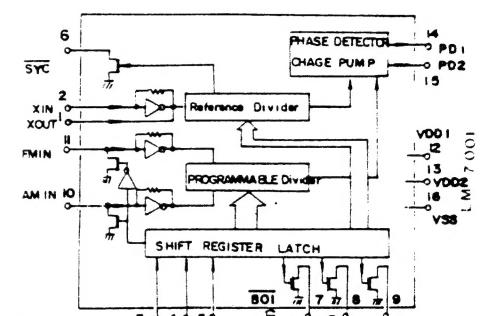
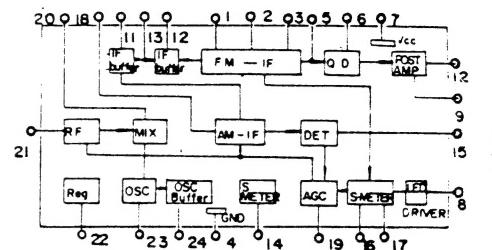
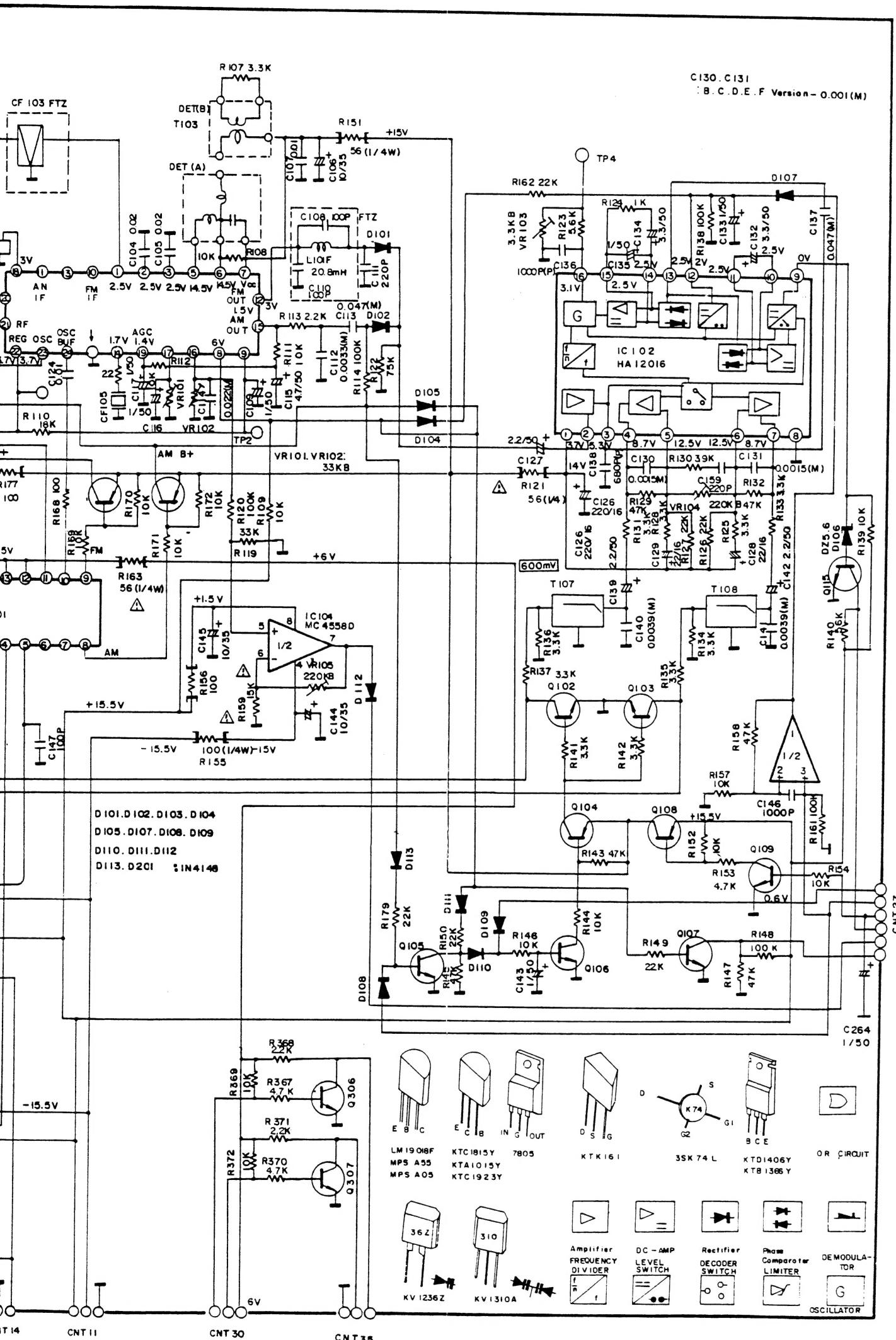
D

E

F

G

# Schematic Diagram

**RA1240R**


## SERVICE INFORMATION

- RESISTANCE VALUES ARE INDICATED IN OHMS UNLESS OTHERWISE SPECIFIED. (K = 1000, M = 1000000)
- CAPACITANCE VALUES ARE INDICATED IN MICROFARADS UNLESS OTHERWISE SPECIFIED. (P = MICRO-MICROFARAD)
- ALL VOLTAGES ARE MEASURED WITH GROUND DC : VALUE WITH NO SIGNAL  
AC : R.M.S (AT 1 KHZ & 8 OHM LOAD FULL SIGNAL)
- THE 3MW MARKED RESISTORS ARE MOUNTED ABOVE THE P.C.B ON SLEEVES.
- PRECAUTION**
  - A) ALL COVERS, SHIELDS AND INSULATING SPACERS MUST BE REPLACED BEFORE RETURNING APPLIANCE TO CUSTOMER.
  - B) A DAMAGED POWER SUPPLY CORD MUST BE REPLACED BEFORE RETURNING APPLIANCE TO CUSTOMER.
  - C) DIELECTRIC TEST SHOULD BE DONE BEFORE RETURNING APPLIANCE TO CUSTOMER.
  - D) SINCE THOSE PARTS MARKED WITH  $\Delta$  ARE CRITICAL PARTS FOR SAFETY, USE THE ONE DESCRIBED IN PARTS LIST.

D

E

F

G

1

2

3

4

5

# Block Diagram

